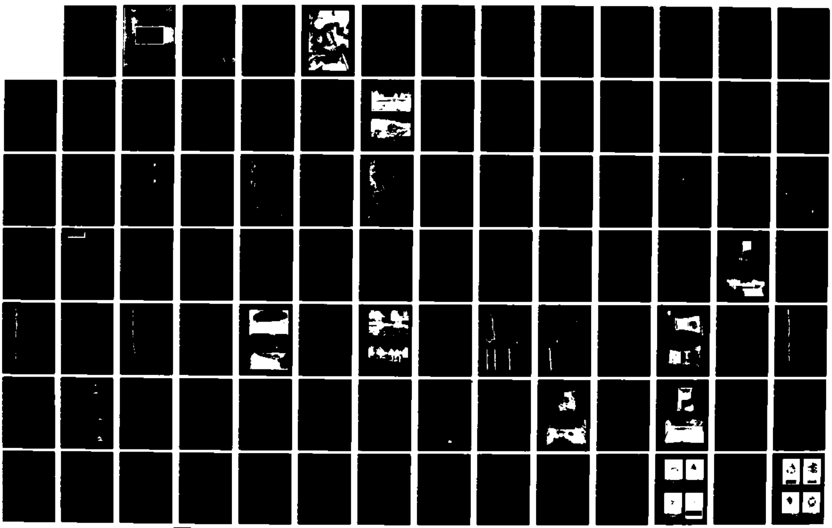
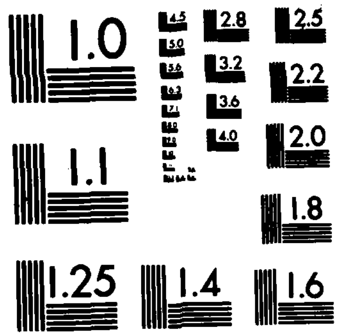
AD-A126 862 ARCHAEOLOGICAL TEST EXCAVATIONS PHASE II TESTING AT THE 1/2
HAGERMAN NATIONAL..(U) EASTERN WASHINGTON UNIV CHENEY
G A LOTHSON ET AL. FEB 81 1-2 DACW01-81-C-0026

UNCLASSIFIED F/G 5/6 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

ARCHAEOLOGICAL TEST EXCAVATIONS
PHASE II TESTING AT THE
HAGERMAN NATIONAL FISH HATCHERY
HAGERMAN VALLEY, IDAHO

by

Gordon Allan Lothson

and

Keith Allen Virga

Harvey S. Rice
Principal Investigator

Contract #DACW-81-C-0026

February, 1981

Eastern Washington University Reports in Archaeology and History
Cheney, Washington 99004

Prepared for
Walla Walla District
U.S. Army Corps of Engineers
Walla Walla, Washington 99362

ARCHAEOLOGICAL TEST EXCAVATIONS PHASE II TESTING AT THE HAGERMAN NATIONAL FISH HATCHERY HAGERMAN VALLEY, IDAHO

by
Gordon Allan Lothson
and
Keith Allen Virga

Harvey S. Rice
Principal Investigator

Contract #DACW-81-C-0026
February, 1981

Report Number 1-2
Eastern Washington University Reports in Archaeology and History
Cheney, Washington 99004

Frontispiece. Field Conference.

Left to right, John A. Ross, field crew member, LeRoy Allen, Archaeological Coordinator, and Harvey S. Rice, Principal Investigator.

ABSTRACT

It is suggested in this report that portions of the Hagerman National Fish Hatchery site are a significant and important multicomponent archaeological site. Data collected by Max G. Pavesic and Daniel S. Meatte indicated the existence of extensive occupation, and they recognized seven potentially significant localities. One of these seven localities, not tested by Pavesic and Meatte, was examined during this Phase II study; as was one additional area which was originally located outside of the construction zone. The U.S. Army Corps of Engineers redesigned part of the project in an attempt to avoid impacts on the cultural resources present at the site and placed the planned administration building and the cold storage area outside of the known boundaries of the site. The purpose of this Phase II study was to examine these new locations and to evaluate their prehistoric archaeological potential in terms of the criteria of the National Register of Historic Places and to prepare a report containing the relevant data and recommendations. The evaluation and recommendations contained herein are based on this Phase II testing of these two new construction areas.

CONTENTS

FIGURES

FIGURES (cont.)

TABLES

ACKNOWLEDGMENTS

The principal author of this study would like to express his thanks to all of the individuals who contributed their time and their talents to the successful completion of the field investigations and writing of the report. I would particularly like to thank the field crew who worked long hours under somewhat disagreeable conditions: Harvey S. Pete Rice, John A. Ross, Julie Ross, Janet Camp, Robert Mierendorf, Stanley Gough, Terry Eller, Jeffrey Walker, Glen W. Lindeman, and Keith Virga. Their efforts are greatly appreciated.

The writers would like to thank LeRoy Allen, Archaeological Coordinator for the Walla Walla District, U.S. Army Corps of Engineers. It is a real pleasure to work with Mr. Allen as he understands archaeology and archaeologists. His help with securing maps, photographs, and the initial field report written by Max G. Pavesic and Daniel S. Meatte greatly facilitated the writing of this report. Thank you again, LeRoy.

A special thank you is also due to Kenneth Ames who represented Thomas Green, the State Historic Preservation Officer. Mr. Ames allowed us to modify the scope of work in such a way as to permit the implementation of a more extensive and useful testing program.

The authors are also indebted to the staff at Eastern Washington University: Harvey S. Rice and Marsha Krebs. We are particularly indebted to Harvey S. Rice and Barbara Jeanne Rice for their patience and understanding, and their efforts in editing and correcting this report which far exceeds our original draft.

Finally, the principal author would like to express his personal thank you to Keith Virga of Eastern Washington University. Keith's work in the field, his help with the sampling of the site, his careful attention to detail in organizing the note-taking system, and his help with the excavation gear has greatly enhanced the value of this report. This study could not have been completed without his help. For these reasons, his name has been added to the authorship of this report. Any errors in interpretation and content are the responsibility of the principal author.

This report is the result of the work of a number of dedicated archaeologists from Eastern Washington University that we, the authors, have had the great privilege to work with and for during the 1980 field season.

PART I

INTRODUCTION

In the summer of 1979, archaeological test excavations were conducted at the Hagerman National Fish Hatchery (HNFH) site (10GG176) by Max G. Pavesic and Daniel S. Meatte of Boise State University, Boise, Idaho (Figs. 1 and 2). These excavations revealed extensive prehistoric occupation of the site and the adjacent locale, an occupation which appeared to date from the late prehistoric period, ca. 850-1350 A.D. (Pavesic and Meatte 1980:79). According to Pavesic and Meatte (1980:79), the cultural materials recovered from the site contain artifacts commonly found throughout the Great Basin, suggesting cultural ties with the Great Basin as opposed to the Columbia Basin and Plateau. Pavesic and Meatte isolated seven potentially important localities within the site area and recommended that additional work be done in those areas to be impacted by future construction planned by the U.S. Army Corps of Engineers.

In an effort to avoid impact to the archaeological areas, the Walla Walla District, U.S. Army Corps of Engineers (USACE), redesigned the project in hopes of placing the planned facilities outside of the known site area.

In the fall of 1980, LeRoy Allen, Archaeological Coordinator for the Walla Walla District, USACE, contacted Harvey S. Rice at Eastern Washington University (EWU), Cheney, and requested that Mr. Rice undertake the archaeological testing of the redesigned proposed sites for an administration building and a cold storage area at the HNFH (Figs. 3 and 4).

On November 23, 1980, archaeologists from EWU arrived at the HNFH site to test excavate the areas to be impacted by the redesigned construc-

tion plan. Gordon A. Lothson, field director, assisted by Keith Virga, field assistant, was placed in charge of the project. Harvey S. Rice acted as principal investigator and contracting representative for EWU, and LeRoy Allen provided the scope of work for the USACE.

Under this scope of work, EWU was to perform the following archaeological services:

> . . . excavate a minimum of 37 (1 m x 1 m) test pits to a depth devoid of cultural materials in areas of proposed construction as directed by the contracting officer. The test excavations shall be identified in a controlled grid system, artifacts shall be catalogued and other data generated during the testing shall be put into an order acceptable for evaluation purposes. Photographic documentation and field notes shall be maintained in accordance with professional standards; analysis of the recovered cultural materials is not a requirement under this scope of work. The collected cultural resource materials and associated data shall be submitted to the Idaho State Historic Preservations Officer for interim holding before being submitted to the museum at Idaho State University (Contract 1980:2),

and submit a report to the archaeological coordinator by February 27, 1981.

In order to test those areas designated by the archaeological coordinator, the EWU field crew excavated a total of 22 (2 m x 1 m) test units in three different areas where construction work was being considered for the spring and summer of 1981. The field director felt that all of the test units should be of the 1 m x 2 m size as it is extremely difficult to excavate a 1 m x 1 m pit any deeper than 50 cm, and that the test pits should go down to bedrock or to a depth of one meter (100 cm) as cultural debris had been located by Pavesic and Meatte to a depth of 80 cm in the tested areas (Pavesic and Meatte 1980:113-115). Only those portions of areas VI and VII (established by Pavesic and Meatte 1980:128) to be impacted by the proposed site of the administration building and the cold storage area were tested. The results of this testing and the proposed recommendations for future work are the subjects of this report.

Figure 1. Location of the Hagerman National Fish Hatchery Site.
(after Pavesic and Meatte 1980)

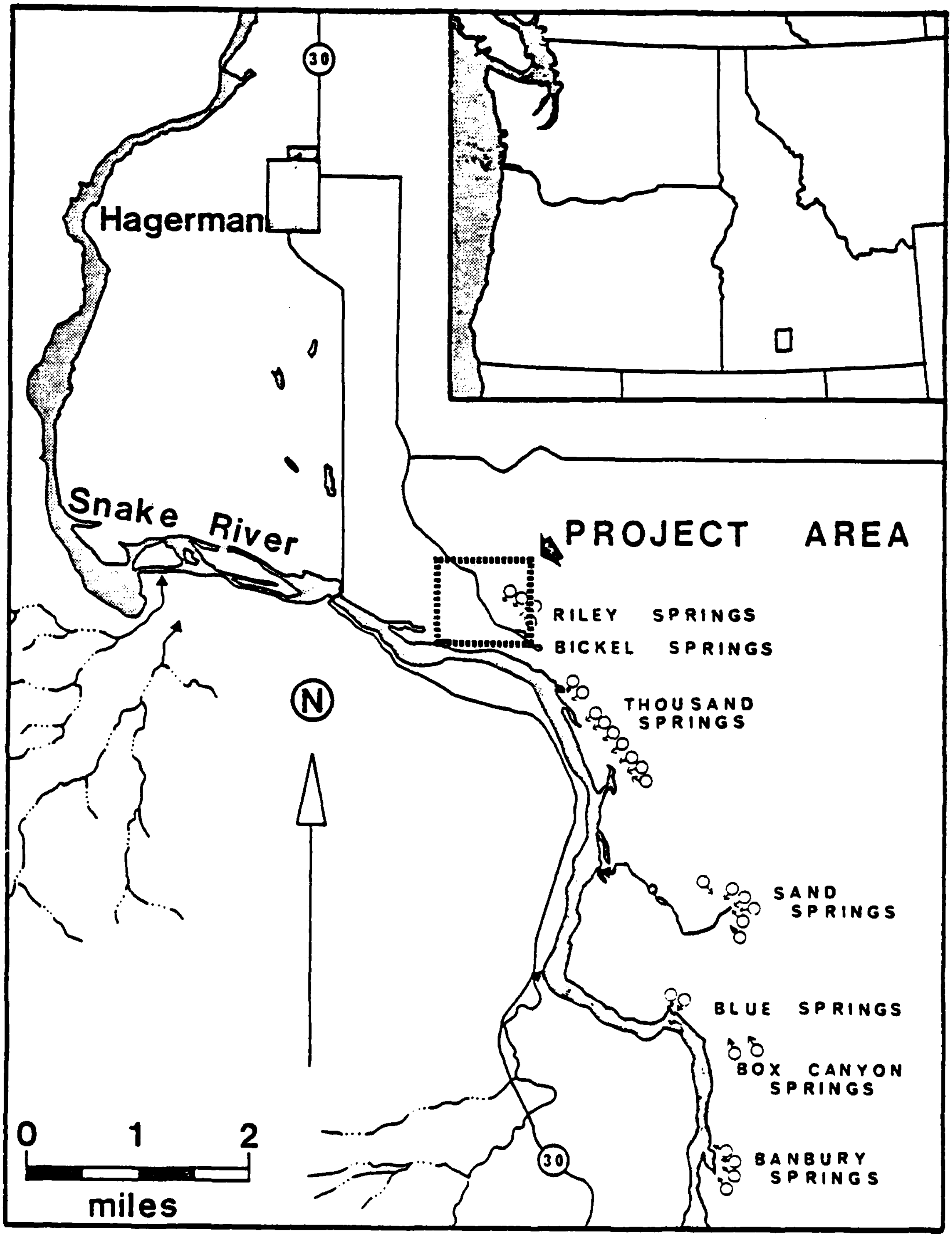

30
Hagerman
Snake River
PROJECT AREA
RILEY SPRINGS
BICKEL SPRINGS
THOUSAND SPRINGS
N
SAND SPRINGS
BLUE SPRINGS
BOX CANYON SPRINGS
BANBURY SPRINGS
0 1 2
miles
30

Figure 2. Study Units Employed at the Hagerman National Fish Hatchery Site.
(after Pavesic and Meatte 1980)

HAGERMAN NATIONAL FISH HATCHERY

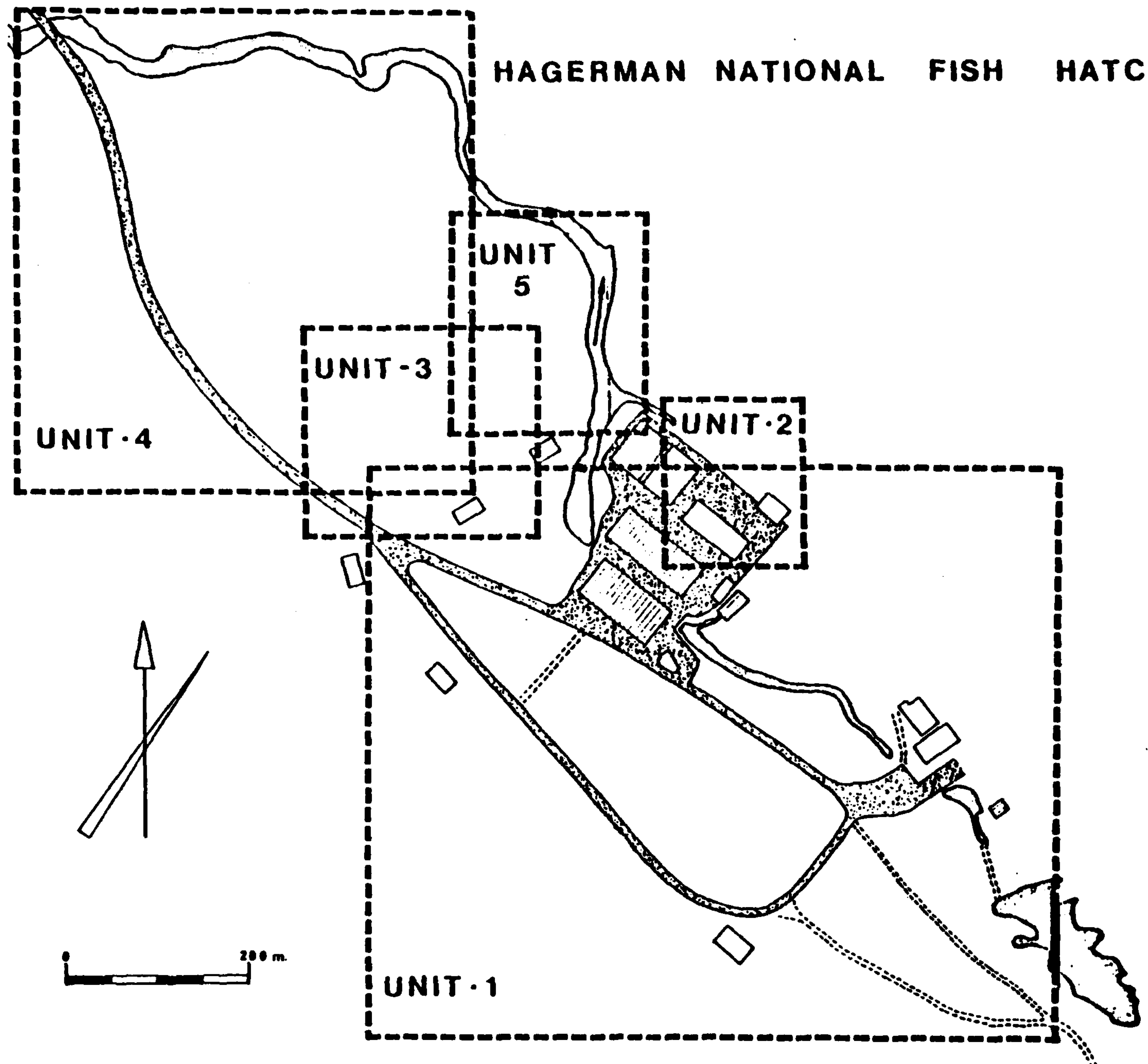
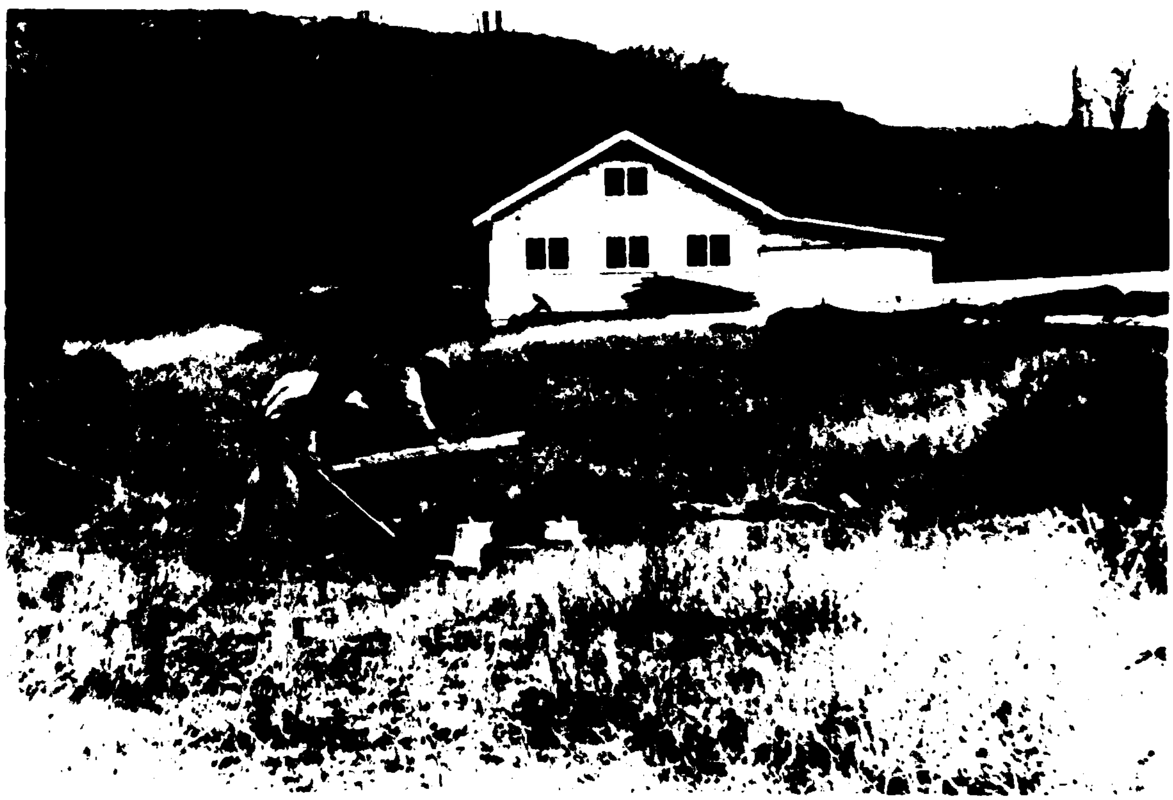


Figure 3. View of the Site Looking West, Area VII, the Proposed Administration Building Construction Zone.

Figure 4. View of the Site Looking East, Area VIII, the Proposed Cold Storage Area Construction Zone.



PART II

PHYSICAL ENVIRONMENT

The HNFH locality is situated in south-central Idaho in the Hagerman Valley adjacent to the Snake River Plain (Fig. 1). The hatchery site itself is situated on the present post-Pleistocene floodplain of the Snake River at the base of a series of basalt cliffs, the lowest member of which dates to the Tertiary period. At the base of these cliffs, numerous springs issue forth from beneath a talus slope which marks the geological contact between the Tertiary age impermeable Banbury basalt and the overlying vesicular and highly fractured permeable Thousand Springs basalt. According to Stearns et al., (in Pavesic and Meatte 1980:6)

> The Thousand Springs group issues from an exceedingly permeable subaqueous phase of the Thousand Springs basalt, where it rests upon impermeable Banbury basalt. The water is derived from a lava-filled valley to the north, carved in these rocks by the Snake River to a lesser depth than the present canyon. . . . Each spring from Sand Springs to Riley Springs is at a successively lower altitude, indicating that the buried channel is filled with water to a certain level and that each low place in the impermeable beds along the canyon wall serves as a spillway (Stearns [et al.] 1938:162).

One of these springs, locally known as Riley Springs, is situated near the study area. This spring contributes a significant quantity of water to Riley Creek which serves the hatchery complex. It is also the probable reason why prehistoric peoples occupied the area as the spring and creek provide a dependable source of water for the inhabitants in an otherwise dry, hot region. As Pavesic and Meatte note (1980:6):

> The spring complex is part of the world's most productive aquifers discharging a combined total of 4.7 million acre-feet of water annually, mainly between Twin Falls and the Hagerman Valley. . . . This highly permeable basalt is of relatively recent Upper Pleistocene age. . . .

The Local Geological Site Location

The local geological setting has been greatly influenced by geological events which have taken place during the late Quaternary period. The most important and significant of these geological events from the point of view of the prehistoric archaeologist are those related to the catastrophic flooding of the Snake River Plain which occurred when glacial Lake Bonneville overflowed its catchment basin and began to drain through the Snake River outlet to the sea. This episode, according to Carl E. Gustafson (Webster et al. 1976), occurred before the well-documented Spokane Flood which cascaded through eastern Washington into the Snake River drainage ca. 13,000 Before Present (B.P.). Gustafson bases his temporal reconstruction of the occurrence of Spokane Flood deposits, which overlie the Bonneville age Normal Hill gravels (Webster et al. 1976:21), on the fact that nowhere in the Columbia Basin can one find Bonneville Flood deposits lying above the Spokane materials. This dating of the last Bonneville Flood episode agrees rather well with the data presented by Morrison and Frye (1965) who place the last flooding of the Snake River Plain at or about 12,500 to 14,500 B.P. (Fig. 5). This event is represented in the site area by materials dumped (mainly gravels and terrace bars) into Hagerman Valley and by the rugged, scoured appearance of the eroded basaltic cliffs. As Pavesic and Meatte (1980:7) note:

> The Thousand Springs section of the Snake River canyon played an important role during the flood, as this part of the canyon acted as a constriction which regulated the amount of water delivered downstream. The floodwaters doubled the width of the canyon and the water rose to an estimated 240 feet above the Snake River with a discharge capacity of 33 million cubic feet per second. . . . Once the floodwaters gushed through the Thousand Springs restriction, a tremendous volume of water and debris was dumped into the Hagerman Valley. The Valley acted as a massive sediment trap. . . .

As the flood waters receded, gravel deposits, sands, and eventually silts were left behind. These deposits began to accumulate in the topographical low points within the valley. These materials in turn were worked and reworked by the wind, and dune and dune-like features developed in between the ridges of basalt. Talus slopes washed away by the meltwaters from glacial Lake Bonneville were re-established by the continuing processes of weathering which provided additional slopewash sediments to those already present in the Hagerman Valley. Sand storms have continued to rework all of these deposits and have, to a large degree, prevented the establishment of vegetation on the more exposed basaltic ridges. Most geologists feel that North America, and in particular the Great Basin area, had assumed its general physiographic character by ca. 8,000 to 5,000 B.P. (Morrison and Frye 1965).

The Soils

The soils present at the HNFH site appear to have developed on the reworked overbank sediments which seem to have been originally deposited by relatively slow moving waters. These materials are well-sorted, single grained with very little cementation of the particles by $CaCO_3$. Pavesic and Meatte (1980:9) describe the soils as belonging to the Aridisol group, specifically a "Xerollic Camborthid." According to Soil Taxonomy (1975:72):

> The unique properties common to Aridisols . . . are a combination of a lack of water available to mesophytic plants for very extended periods, one or more pedogenic horizons, a surface horizon or horizons not significantly darkened by humus, and absence of deep, wide cracks . . . the Aridisols have no "available" water . . . during most of the time that the soil is warm enough for plant growth . . .
>
> Aridisols are primarily soils of arid areas. They are in places that preclude much entry of water into the soil at present, either under extremely scanty rainfall or under slight rainfall that for one reason or another does not enter the soil. Vegetation, if present, consists of scattered plants, ephemeral grasses and forbs,

> cacti, and xerophytic shrubs. Some Aridisols furnish limited grazing. If irrigated, many of them are suitable for a wide variety of crops.

Soils of this type are "predominantly medium textured, deep and moderately medium textured, deep and moderately deep light colored soils . . . (Soil Conservation Service 1973)" (in Pavesic and Meatte 1980:9) which have been modified by recent pedogenic processes. Soil profiles at the HNFH site itself have been described by Young et al., (in Pavesic and Meatte 1980:9) as:

> The subsurface soil is dull-brown or light grayish-brown loose or loamy sand. A slightly more compact and heavier subsurface layer is present in many places, but not everywhere. In most places, at a depth ranging from 1-1/2 to 3 feet, there is a light-grey [sic] limy layer consisting of loamy sand, or gravel, which in some places is softly cemented. This layer, in turn, is underlain at a depth ranging from 3 to 4 feet by a loose bed of sand or gravel (Young [et al.] 1929:19) (Fig. 6).

This description agrees rather well with the soil classification assigned by Hironaka and Fosberg (1979:62) and applies to the Hagerman site by Pavesic and Meatte (1980:9). Clearly, the soils do not have a very well-developed "ped" structure and there definitely is a cambic (limy) horizon--characteristics which are common to xerollic comborthids and xerollic haplorgids. See the soil descriptions presented in Pavesic and Meatte (1980:134-138) and the soil profiles drawn of the excavated test pits (Appendix C), this study.

The Vegetation and Climate

Pavesic and Meatte (1980:7-11) have described the climate and the resulting vegetational pattern present in the local area as being arid steppe with an average yearly precipitation recorded near Hagerman of between 8.54 and 8.93 inches per year. The climate is characterized

by hot and dry summers and relatively cool, moist winters. According to Pavesic and Meatte (1980:8):

> The dominating climatic feature is the presence of prevailing Pacific westerlies which appear moisture-bearing from the winter months through June, with moisture becoming almost non-existent in July and August except for the few local thunderstorms. Also, "dry" thunderstorms with heavy winds and lightning flashes are common in the summer months. . . . while the county average daily temperatures range from a minimum of 18° F in January to a 93.4° F maximum in July. . . .

Young et al., (in Pavesic and Meatte 1980:8) describe the region as one of "low annual rainfall, a dry atmosphere, a large proportion of sunny days, hot summers and cold winters. . . ." with seasonal wind storms being common to the area and "dust and sand storms are not infrequent" (Young [et al.] 1929:3).

The length of the growing season, "120-150 frost-free days annually," is dependent to a large measure upon the "topo-edaphic" conditions that exist within the Snake River drainage at Hagerman (Pavesic and Meatte 1980:8). Sites situated at lower elevations are warmer and have longer growing seasons than do the areas situated on the upper bench, e.g., Bliss, Idaho. Temperature variations between the town of Bliss and the Hagerman archaeological site situated within the Snake River Valley proper can vary as much as five degrees to ten degrees Fahrenheit, with temperature variations of five degrees common between the two locations. These differences in local climatic conditions, the influence of the Snake River itself, and the presence of Thousand Springs, Riley Springs, Bickel Springs, etc., complex appear to affect the local vegetation to a larger degree than the regional climatic conditions described above.

Pavesic and Meatte have assigned the vegetation present at the Hagerman site to the _Artemisia tridentata/Agropyron spicatum_ (big sagebrush/bluebunch wheatgrass) habitat type. The use of the term habitat type in place

of vegetation zone by these two scholars is unfortunate. Clearly, the site area lies within what Rexford Daubenmire (1970) has called the Artemisa tridentata/Agropyron zone and is part of a complex series of steppe-like vegetation communities, but the local habitat type and present cover type, the vegetation growing at the location today, is clearly not big sagebrush and bluebunch wheatgrass (Fig. 7; Appendix A).

What is important to recognize here is the difference between broad ecological and vegetational zones which cover large areas and differ only slightly in either the constituents or the frequencies of the various species present, as opposed to an area like the Hagerman locale which is characterized by a complex vegetational mosaic which varies considerably in response to changes in climate and local topo-edaphic conditions. Such is the situation here at the Hagerman site which can best be described as a vegetational mosaic that has been greatly altered by recent grazing and complicated by local topo-edaphic adaptations.

There are, for example, a very significant number of mosaic type plants including such examples as broad-leaved cattail (Typha latifolia) and willow (Salix sp.) that occur near the head of springs and along the rivers and streams that issue forth from the northern rim of the Snake River Canyon. The vegetation growing on the shallow stoney soils differs greatly from the Artemisia tridentata/Agropyron association which is found between the soil denuded ridges. Here on the stoney soils, one might encounter a different association (Artemisia rigida-Poa sandbergii) as the dominant species along with the Agropyron, stiff sagebrush (Artemisia rigida), threetip sagebrush (Artemisia tripartita) or low sagebrush (Artemisia arbuscula)--depending, of course, upon the deepness of the soil and the amount of local moisture available.

The vegetational mosaic as seen at the Hagerman locale consists, therefore, of a riparian vegetation confined to the springs with garlands of brush paralleling the creeks and streams; big sagebrush communities located on the deep, loamy soils which occur between the ridges and on the wide flood plain terraces; and xeric plants such as stiff sagebrush, Sandberg's bluegrass (*Poa sandbergii*) and cheatgrass brome (*Bromus tectorum*) on the shallow stoney soil ridges. Cheatgrass brome is a European exotic plant that replaces *Agropyron spicatum* in areas where grazing has taken place.

The Faunal Resoulces

Pavesic and Meatte (1980:10-12) have identified a number of faunal species that were available to the prehistoric inhabitants of the HNFH site (Appendix B). These include a great variety of mammals common to the Great Basin area and to the adjacent central Rocky Mountains. It is not certain what animals were utilized at the Hagerman locale as the sample obtained by Pavesic and Meatte and described by David Forstch (Pavesic and Meate 1980:72-74) contains so few examples. Only a few fragments from six genera were identified. These include such species as jackrabbit (cf. *Lepus*), coyote (*Canis*), badger (cf. *Taxidia*), antelope (cf. *Antilocapra*), bobcat (*Lunx* cf. *rufus*) and bison? (*Bovid*). According to David Forstch (Pavesic and Meatte 1980:74):

> Three individual rabbits (*Lepus*) are represented in the collection along with one badger (*Taxidia*). The other specimens are too fragmentary and limited to determine a minimum number of individuals. Likewise, the sample is inconclusive in terms of seasonality. No major processing area for the larger animals is now identified at the site, although the rabbits may represent one kill. Future excavation will hopefully expand the fauna collection to fully understand the range of animals exploited, clarify the *Bovid* find and determine the seasonality of the hunts.

Until more data is collected at the site and a more detailed analysis of the kind undertaken by Christopher Brown (Lothson et al. 1980: Appendix VIII) is completed, little can really be said about these resources and about the resource exploitation pattern and resource procurement strategies. The authors of this study are well aware of the fact that the Columbia Plateau and Great Basin peoples used a number of plant resources ethnographically. A study of the resources available in the local region would go a long way towards the understanding of resource exploitation. Such a study, however, goes beyond the scope of work as outlined by the archaeological coordinator and was not pursued during the Phase II study of the Hagerman site.

Figure 5. Time Stratigraphic Units--Lake Bonneville and the Wasatch Mountain System. (after Morrison and Frye 1965)

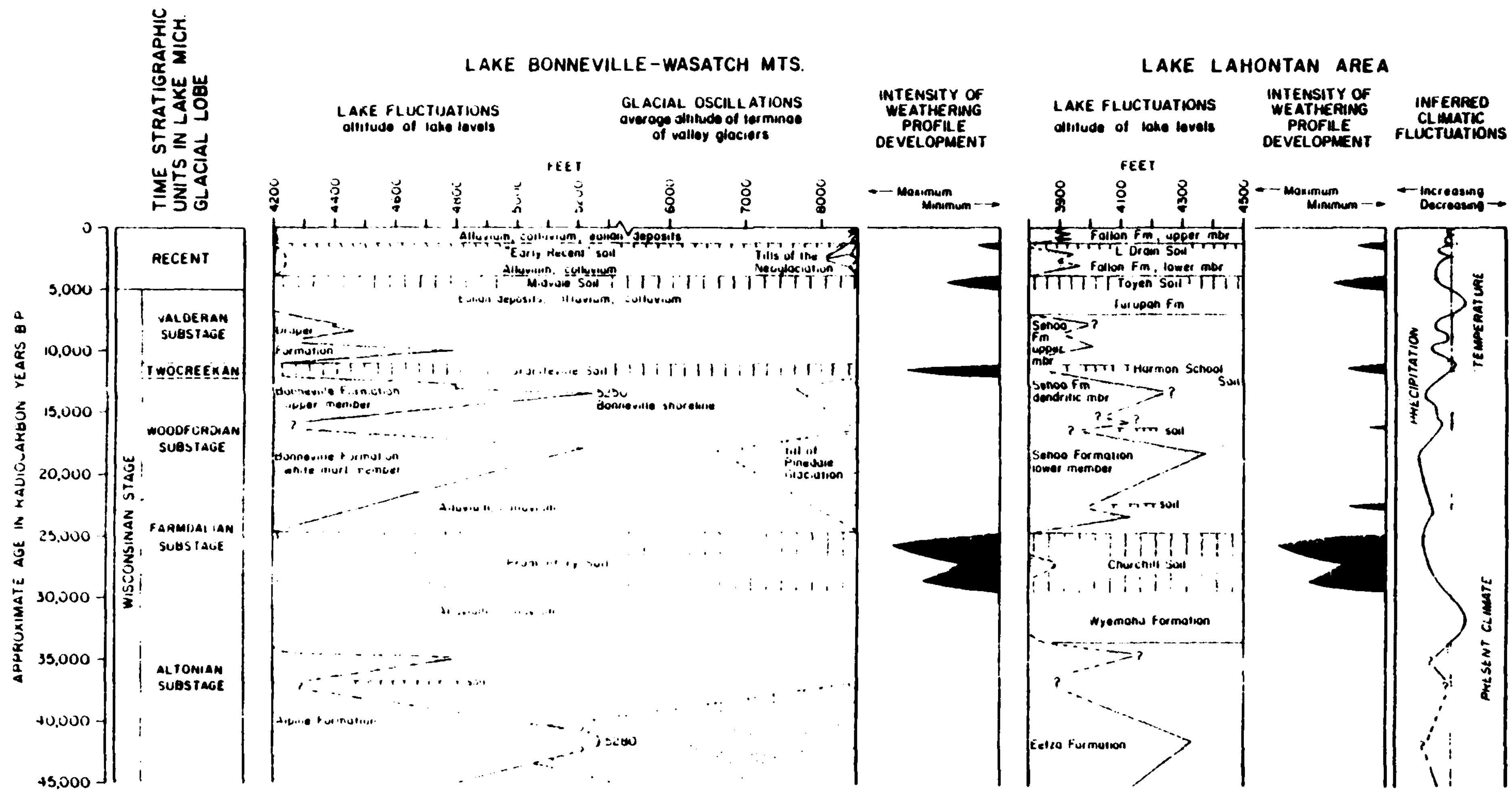

LAKE BONNEVILLE-WASATCH MTS.
LAKE LAHONTAN AREA
TIME STRATIGRAPHIC UNITS IN LAKE MICH. GLACIAL LOBE
LAKE FLUCTUATIONS altitude of lake levels
GLACIAL OSCILLATIONS average altitude of terminae of valley glaciers
INTENSITY OF WEATHERING PROFILE DEVELOPMENT
INFERRED CLIMATIC FLUCTUATIONS
FEET
Maximum
Minimum
Increasing
Decreasing
APPROXIMATE AGE IN RADIOCARBON YEARS B P
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
RECENT
VALDERAN SUBSTAGE
TWOCREEKAN
WOODFORDIAN SUBSTAGE
FARMDALIAN SUBSTAGE
ALTONIAN SUBSTAGE
WISCONSINAN STAGE
4200
4400
6000
7000
8000
Alluvium, colluvium, eolian deposits
Early Recent soil
Alluvium, colluvium
Midvale Soil
Tills of the Neoglaciation
Formation
Bonneville shoreline
Till of Pinedale Glaciation
3900
4100
4300
4500
Fallon Fm, upper mbr
L Drain Soil
Fallon Fm, lower mbr
Toyeh Soil
Turupah Fm
Sehoo Fm upper mbr
Harmon School Soil
Sehoo Fm dendritic mbr
soil
Sehoo Formation lower member
Churchill Soil
Wyemaha Formation
Eetza Formation
PRECIPITATION
TEMPERATURE
PRESENT CLIMATE

Figure 6. Soil Regions in Idaho.

(after Butler 1968)

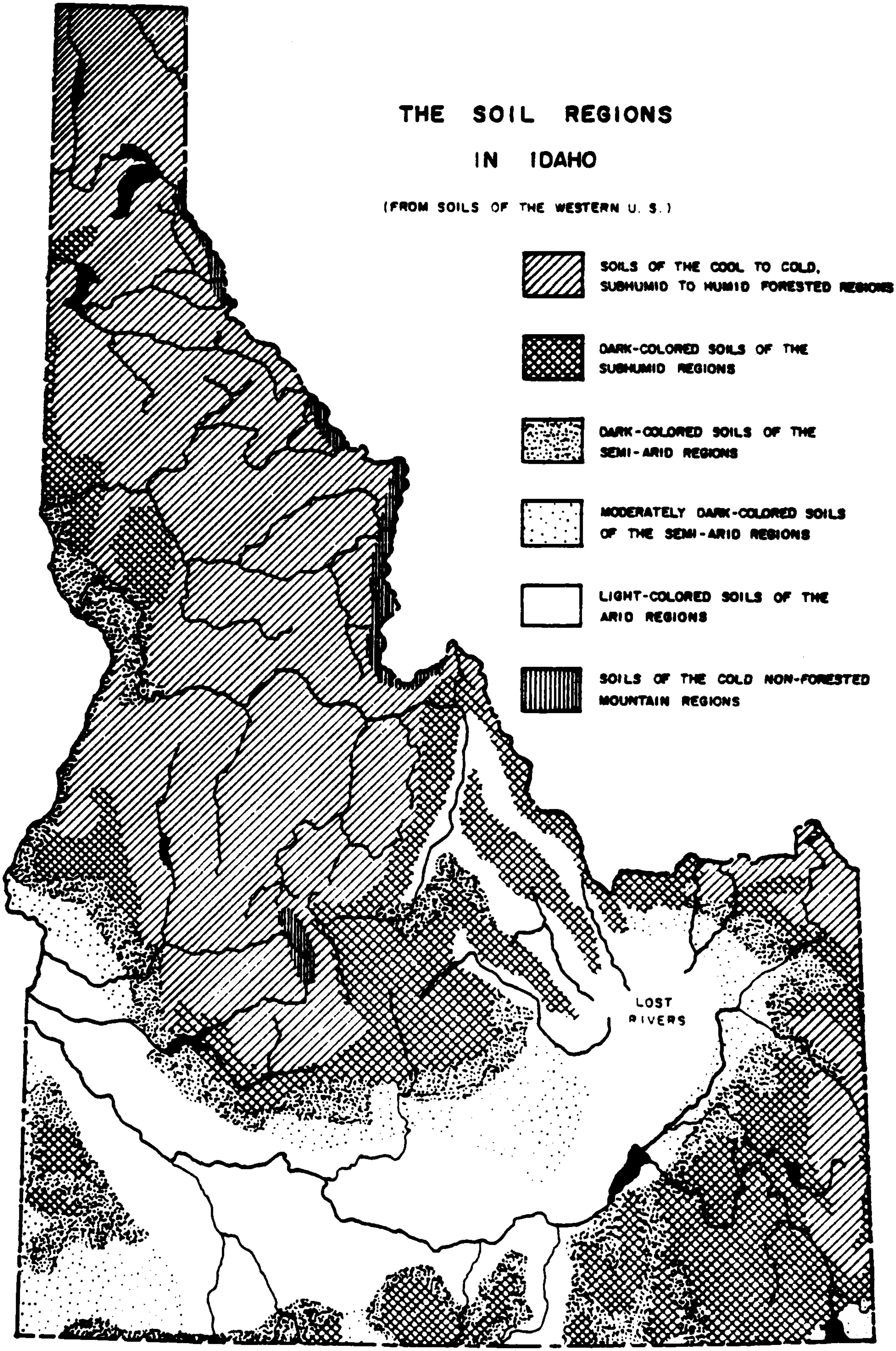
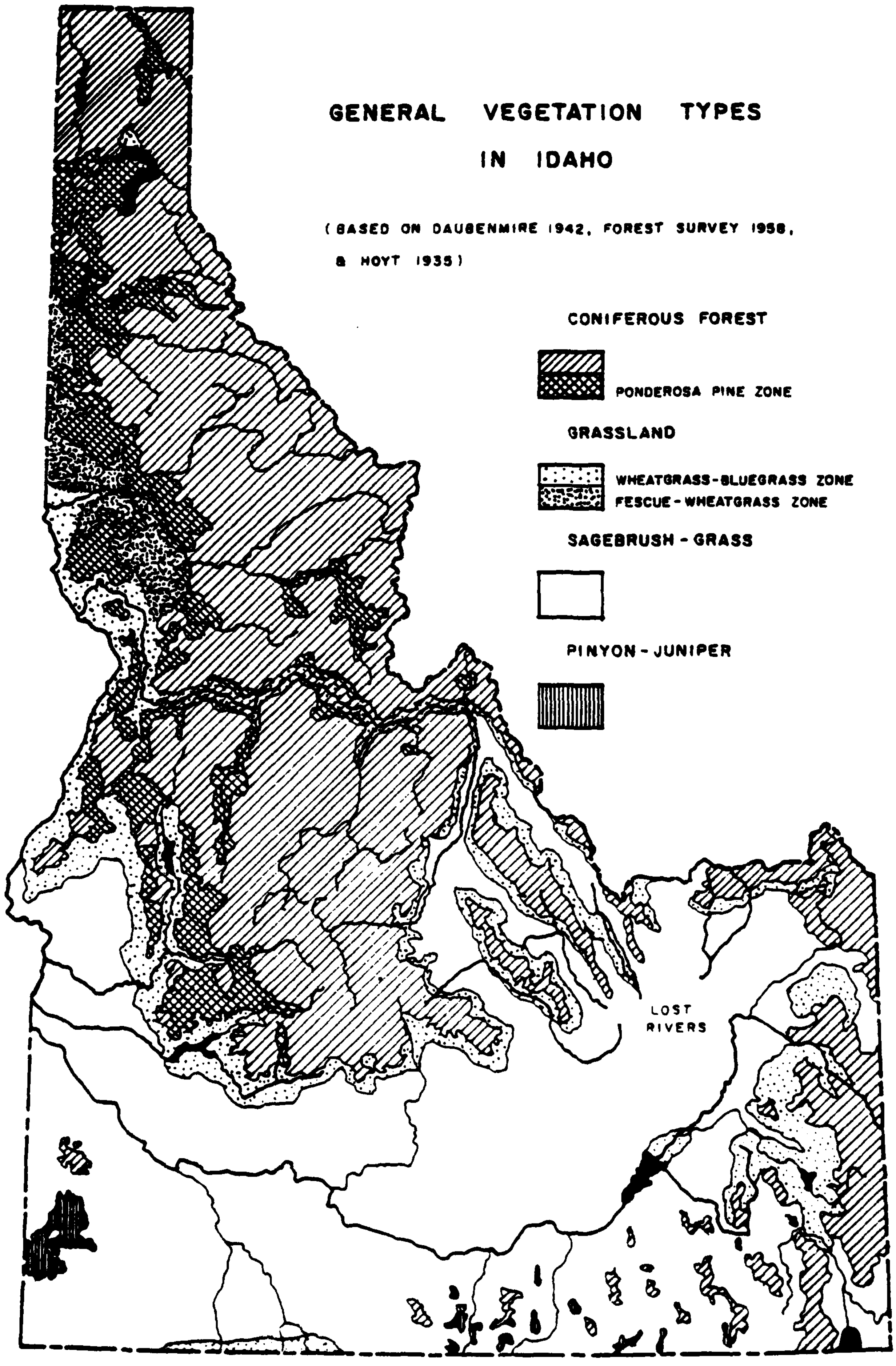

THE SOIL REGIONS
IN IDAHO
(FROM SOILS OF THE WESTERN U. S.)
SOILS OF THE COOL TO COLD, SUBHUMID TO HUMID FORESTED REGIONS
DARK-COLORED SOILS OF THE SUBHUMID REGIONS
DARK-COLORED SOILS OF THE SEMI-ARID REGIONS
MODERATELY DARK-COLORED SOILS OF THE SEMI-ARID REGIONS
LIGHT-COLORED SOILS OF THE ARID REGIONS
SOILS OF THE COLD NON-FORESTED MOUNTAIN REGIONS
LOST RIVERS

Figure 7. General Vegetation Types in Idaho.

(after Butler 1968)


GENERAL VEGETATION TYPES
IN IDAHO
(BASED ON DAUBENMIRE 1942, FOREST SURVEY 1958,
& HOYT 1935)
CONIFEROUS FOREST
PONDEROSA PINE ZONE
GRASSLAND
WHEATGRASS-BLUEGRASS ZONE
FESCUE-WHEATGRASS ZONE
SAGEBRUSH-GRASS
PINYON-JUNIPER
LOST
RIVERS

PART III

PHASE II: FIELD TESTING METHODS

The methodology employed by the investigators from EWU was designed to test the archaeological potential of two redesigned hatchery facilities at the HNFH site. The archaeologists selectively placed test units--a judgemental random sample--in the endangered locations that were to be impacted by the new construction. Test pits of the 1 m x 2 m size were placed at the appropriate locations within the proposed construction areas (Fig. 8) with the approval of the archaeological coordinator. The field director, as stated earlier in this study, changed the size of the test pits from the 1 m x 1 m size units to 1 m x 2 m size units as he felt that it would be extremely difficult to excavate a 1 m x 1 m pit any deeper than 50 cm and that the test pits should go down to bedrock or to a depth of one meter (100 cm). The artifacts, however, were collected by 1 m x 1 m units so as to facilitate comparisons and to allow future scholars to employ a systemic 1 m x 1 m spatial analysis approach if such a method was deemed desirable.

The archaeological coordinator provided the investigators with a map which delineated the construction areas that were to be investigated (Fig. 9). According to this map, fifteen 1 m x 1 m units were to be placed in the redesigned cold storage area (Figs. 8 and 9). With the agreement of the principal investigator, the archaeological coordinator, Kenneth Ames, representing the Idaho State Historic Preservation Officer (SHPO), and the field director, the emphasis of the testing program was changed. It was decided that ten 1 m x 2 m units would be adequate for testing that portion of Area VII to be affected by the planned administra-

tion building. The field director wanted a more balanced testing program that would adequately investigate the two additional areas where construction was planned for the spring of 1981. It was the field director's feeling that there was a high probability that materials would be found in Area VI and that only two 1 m x 1 m units would be insufficient for testing purposes as units of this size would not permit deep testing, a procedure which he felt to be essential. He also believed that five 1 m x 1 m units would not adequately test the cold storage area. The data and evaluation of the recovered materials presented in Parts IV and V of this study would appear to validate this point of view.

In order to accomplish the objectives as outlined by the archaeological coordinator, the field director and field assistant first attempted to find and relocate the horizontal control points established for the site by Pavesic and Meatte. Their efforts, unfortunately, met with little success as no maps or transit data were available. New mapping points--horizontal and vertical control markers--had to be established. Pavesic and Meatte (1980:110) indicated the presence of a U.S.G.S. benchmark situated on the corner of one of the concrete raceways. It is uncertain if this datum point was used as either the vertical or the horizontal control point by those investigators. The field director decided to use this datum, N1445E 1963, as the principle control point. All elevation data and the location of the base lines constructed at the site have been located in reference to this survey datum (Fig. 10).

Data collected from the site was recorded in terms of excavation units randomly placed in the three tested areas. These, in turn, were located on a contour map of the site in terms of the constructed base lines (Table 1). Artifactual and cultural features were also

recorded and compared to the maps drawn of the site. These data were used to determine spatial relationships between artifact clusters and surface features. Vertical data obtained from the excavations were compared to the soils described by Pavesic and Meatte.

The excavation procedure followed by the field crew employed the standard measures and procedures outlined by the USACE for the Columbia River Basin. A horizontal grid system was laid out over the three tested areas along the established base lines and 1 m x 1 m units (grouped in pairs to facilitate excavation) were excavated in arbitrary 10 cm levels. All of the materials were put through a ¼ inch mesh screen and the cultural debris was collected, recorded, placed in labeled paper bags and returned to the laboratory to be processed. No water screening techniques were applied to the soil matrix nor were flotation procedures carried out at the site.

Soil profiles and plan view drawings were made of selected excavation units and features. These units were photographed using black and white film and a number of examples appear in this report. Charcoal samples were not extracted from the various units as no discernable features containing charcoal were found and no contextual relationships could be established where flakes of charcoal suitable for C-14 analysis were found. C-14 isotopic dating is expensive and time-consuming and unless three or four good samples from a known cultural context are found, its application to any archaeological site is limited. Faunal analysis of the remains collected from the test units was not undertaken by the archaeologists. The sample collected from the site contains only a few fragments of bone, none of which were considered identifiable or diagnostic of any species. A larger sample of faunal remains would have to be extracted from the site before any meaningful comparisons could be made.

Figure 8. Excavation Localities.

(after Pavesic and Meatte 1980)

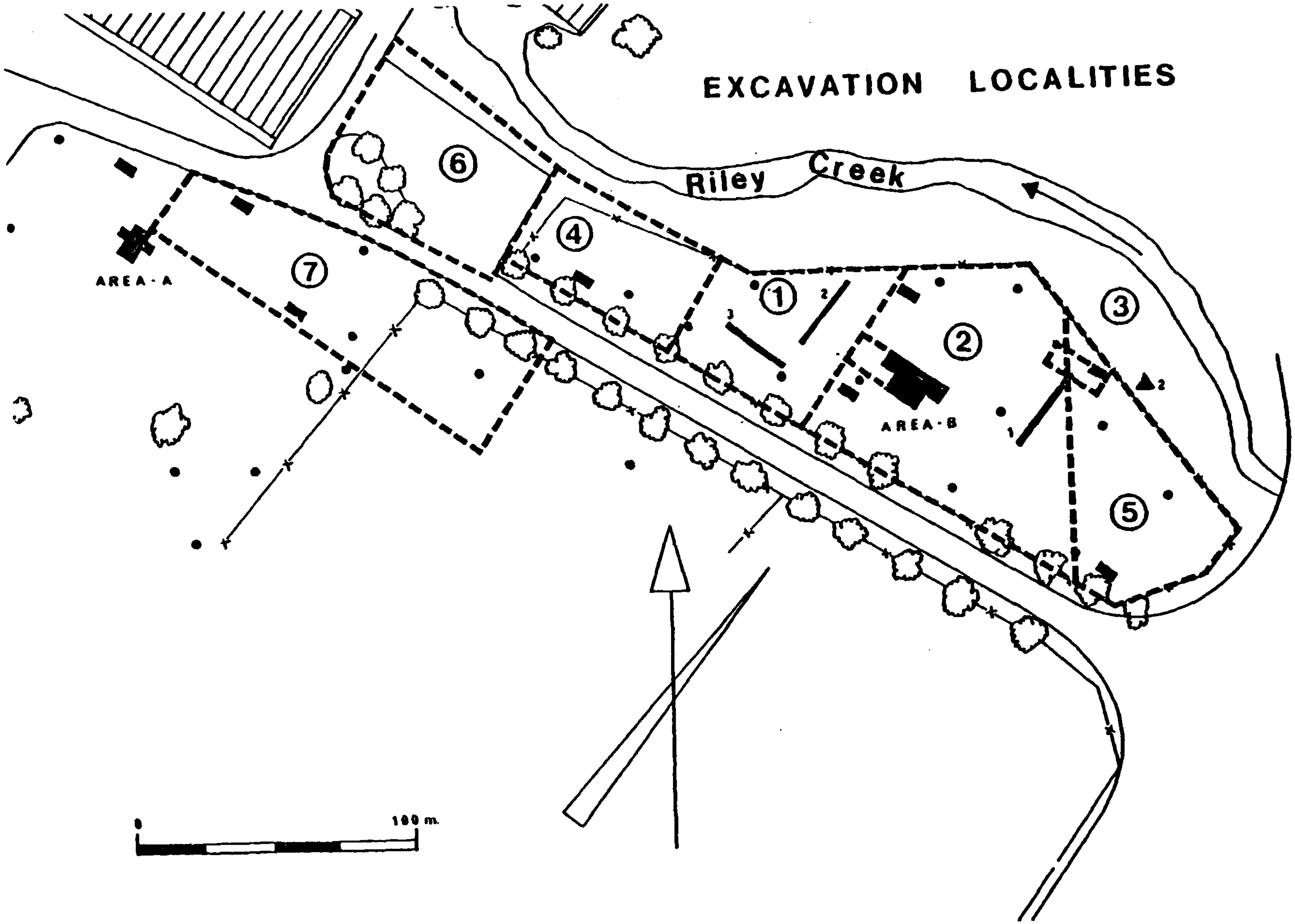

EXCAVATION LOCALITIES
Riley Creek
AREA - A
AREA - B
1
2
3
4
5
6
7
0
100 m.

Figure 9. Phase II Testing Locations and Site Map.
(Contract 1980:Map)

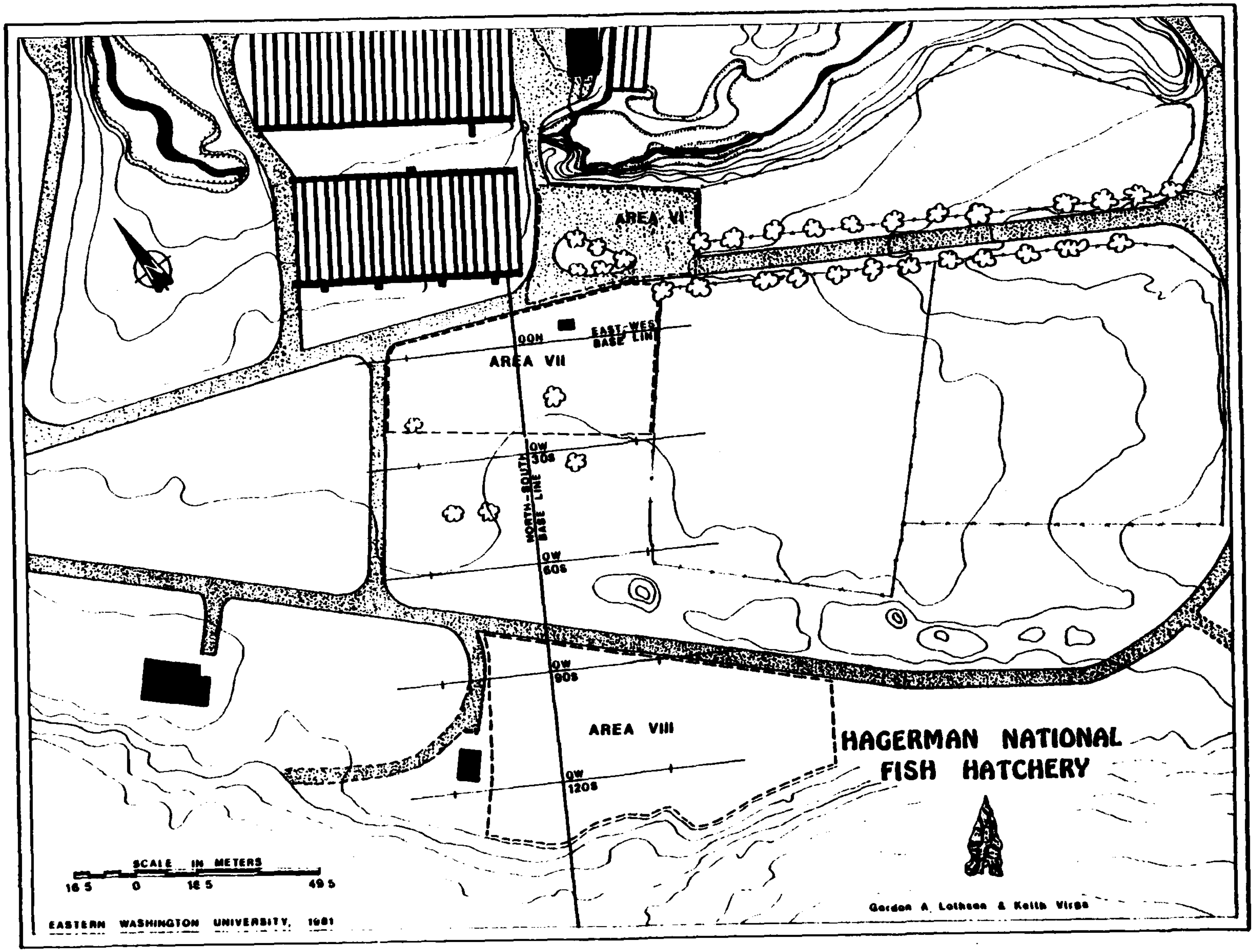
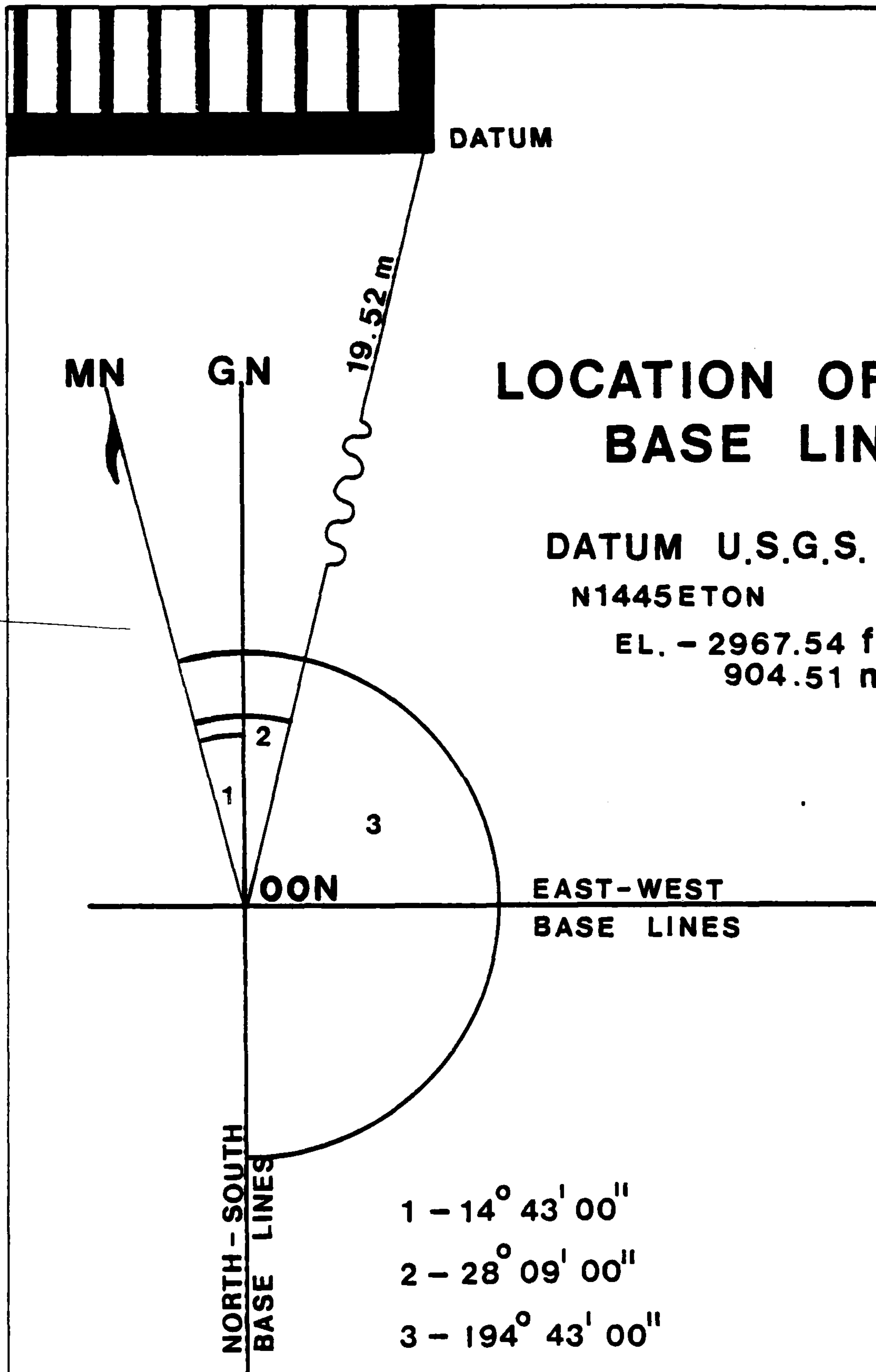

HAGERMAN NATIONAL
FISH HATCHERY
AREA VI
AREA VII
AREA VIII
EAST-WEST BASE LINE
NORTH-SOUTH BASE LINE
00N
0W 30S
0W 60S
0W 90S
0W 120S
SCALE IN METERS
16.5 0 16.5 49.5
EASTERN WASHINGTON UNIVERSITY, 1981
Gordon A. Lothson & Keith Virga

Figure 10. Base Line Locations, Phase II Testing.

LOCATION OF BASE LINES



DATUM U.S.G.S.
N1445ETON
EL. - 2967.54 ft.
904.51 m

1 – 14° 43' 00"
2 – 28° 09' 00"
3 – 194° 43' 00"

EASTERN WASHINGTON UNIVERSITY

Lothson & Virga

TABLE 1

THE LOCATION OF EXCAVATION UNITS IN AREAS VI, VII, AND VIII
HAGERMAN FISH HATCHERY SITE
HAGERMAN, IDAHO

Excavation Units	Size	Grid Unit Location
	AREA VI	
X-1	1 x 1 m	22-23N/14-15E
X-2	1 x 1 m	23-24N/14-15E
X-3	1 x 1 m	38-39N/30-31E
X-4	1 x 1 m	39-40N/30-31E
	AREA VII	
X-5	1 x 1 m	1-2S/29-30E
X-6	1 x 1 m	2-3S/29-30E
X-7	1 x 1 m	4-5S/19-20E
X-8	1 x 1 m	3-4S/19-20E
X-9	1 x 1 m	6-7N/24-25E
X-10	1 x 1 m	7-8N/24-25E
X-11	1 x 1 m	4-5N/9-10E
X-12	1 x 1 m	3-4S/9-10E
X-13	1 x 1 m	3-4S/5-6E
X-14	1 x 1 m	4-5S/5-6E
X-15	1 x 1 m	1-2S/1-2E
X-16	1 x 1 m	0N-1S/1-2E
X-17	1 x 1 m	0-1N/11-12W
X-18	1 x 1 m	1-2N/11-12W
X-19	1 x 1 m	8-9S/15-16W
X-20	1 x 1 m	8-9S/15-16E
X-21	1 x 1 m	0-1S/21-22W
X-22	1 x 1 m	0-1S/22-23W
X-23	1 x 1 m	9-10S/0-1W
X-24	1 x 1 m	8-9S/0-1W

Excavation Units	Size	Grid Unit Location
AREA VIII		
X-101	1 x 1 m	91-92S/52-53E
X-102	1 x 1 m	90-91S/52-53E
X-103	1 x 1 m	84-85S/30-31E
X-104	1 x 1 m	83-84S/30-31E
X-105	1 x 1 m	82-83S/14-15E
X-106	1 x 1 m	83-84S/14-15E
X-107	1 x 1 m	104-105S/4-5W
X-108	1 x 1 m	103-104S/4-5W
X-109	1 x 1 m	99-100S/5-6E
X-110	1 x 1 m	98-99S/5-6E
X-111	1 x 1 m	93-94S/15-16E
X-112	1 x 1 m	92-93S/15-16E
X-113	1 x 1 m	101-102S/25-26E
X-114	1 x 1 m	100-101S/25-26E
X-115	1 x 1 m	96-97S/37-38E
X-116	1 x 1 m	95-96S/37-38E
X-117	1 x 1 m	111-112S/15-16E
X-118	1 x 1 m	110-111S/15-16E
X-119	1 x 1 m	109-110S/62-63E
X-120	1 x 1 m	108-109S/62-63E

PART IV

THE EXCAVATED SITE AREAS

In order to record the information gathered from the three tested areas and to facilitate comparisons with the work done by Pavesic and Meatte, EWU investigators decided to retain the area designations employed by those two archaeologists. Three areas were to be tested: Area VI, located north of the hatchery road and east of the concrete raceway; Area VII, situated south of the concrete raceway; and Area VIII, a new area located well to the south of the raceway and beyond the second hatchery road (Fig. 9). In Area VI, two 2 m x 1 m test pits were excavated; in Area VII, ten 2 m x 1 m units were excavated; and in Area VIII, ten pits of the 2 m x 1 m size were excavated. All of the units were excavated to a depth of one meter or until the underlying basaltic bedrock was reached (Fig. 11).

Area VI

Area VI, as defined by Pavesic and Meatte (1980:128), was never tested during the Phase I testing of the site conducted by Boise State University. Much of this location is presently being used as a parking lot and is covered by a three inch mantle of asphalt (Fig. 12). Fortunately, the EWU field crew was able to test along the margins of the parking lot near Riley Creek (excavation units X-3 and X-4) and in a small area left uncovered by the asphalt directly across from the southeast corner of the southern-most concrete raceway (X-1 and X-2).

The results of these test excavations were rather productive. A substantial amount of archaeological debris was encountered in both of

the units. Stratigraphically, levels 1, 2, 3, and 4 (0-40 cm) contained the highest frequency of bone and lithic debris, with excavation units X-1 and X-2 the greatest density of material (Tables 2-7). Historical (recent) material was also found in this area, but this material was largely confined, as it was in Area VII, to the first two levels with the greatest frequency, 52.17% of the material, being found in level 2. It would appear that prior to the construction of the parking lot some land leveling was done either to facilitate construction or for some other purpose. Local informants indicate that this area was used as an orchard prior to the construction of the fish hatchery in 1933.

Soil profiles drawn and analyzed of both the 1 m x 2 m units support this interpretation (Figs. 13 and 14). Both units exhibit in the soil profiles a lens of mixed fill which appears to lie above a buried and slightly altered A horizon (Figs. 15 and 16). This horizon is poorly developed, as one might expect, and probably represents the old natural ground surface. Historic artifacts are apparently confined to this upper surface and do not extend to any appreciable depth into the underlying deposits (Table 7). Prehistoric cultural debris, however, does extend below this buried soil and appears to represent in situ (in place) cultural debris (Table 8). It is our opinion that the materials above this buried soil represent redeposited debris obtained from some other source. These four 1 m x 2 m units contained 32.31% of the lithic debitage collected at the site during the Phase II testing.

Area VII

Area VII, the area of greatest concern, was tested extensively by the EWU archaeologists for two reasons. (1) Pavesic and Meatte had uncovered what appeared to be a pithouse structure. This feature

(Feature 1 in their terminology) was located in the area of the proposed administration building. Pavesic and Meatte felt that other structural features might also be located in this area deeply buried beneath the altered land surface. (2) Only three 1 m x 2 m units, in addition to the unit which contained Feature 1, had been excavated in Area VII prior to 1980. Thomas Green, Idaho SHPO, felt that the area had not been adequately tested or the cultural resources adequately evaluated. He proposed that additional work be done to make certain that none of the resources of cultural-historical significance were overlooked (Figs. 17 and 18).

The ten additional 1 m x 2 m test pits excavated at the location during the 1980 EWU field season, however, contained a very limited quantity of archaeological debris. The total number of flakes recovered from this 20 cubic meters of soil numbered only 130 examples--about 36.21% of the total number collected at the site. This represents a density of only 6.50 flakes per cubic meter of soil, which is very low in comparison to the density seen in Area VI which exceeded 29 flakes per cubic meter of soil, most of which were situated in those units adjacent to Feature 1 excavated by Pavesic and Meatte (1980:119) and probably represent occupational scatter next to a household unit.

The units with the greatest concentration of lithic and bone fragments were X-15 and X-16, X-17 and X-18, X-19 and X-20, and X-21 and X-22. The other units, those situated closest to Riley Creek and the subsurface pipeline which parallels the asphalt road, surprisingly contained the fewest number of flakes (Fig. 19). The density of flakes per cubic meter of soil in those units near Feature 1 was of the order of 13.62 flakes per cubic meter, or 83.84% of the flakes collected from Area VII, whereas the concentration of flakes in the non-adjacent units was of the order of 1.61 flakes per cubic meter or 15.15% of the flakes collected from the area. The redesign

location of the proposed administration building has been greatly altered by the recent activities of modern man. First, the modifications of the landscape preparatory to the planting of an orchard have destroyed and changed the position of some of the near surface archaeological debris. Second, a large pipeline which services the hatchery complex has destroyed in situ materials which might have existed near the asphalt road which runs between the raceways and the administration site. Third, the excava-tion and placement of a sprinkler system to service the administration building site areas has also affected the site to some degree (Figs. 20 and 21).

Stratigraphically, the concentration of materials in Area VII occurs in those levels immediately below the disturbed horizon. Levels 1 and 2 contain only 30% of the flakes recovered from the area, whereas levels 3 to 8 contain the remaining 70%. The greatest concentration of prehistoric remains occurs in levels 2, 3, 4, and 5, and one would expect that the flakes found in level 2 to probably represent both redeposited and in situ materials as the distrubed zone in Area VII is not quite as thick as that seen in Area VI. This disturbed overburden varies from 15 cm to 28 cm, depending upon the location of the test unit (Fig. 22). One of the problems here, however, is the low frequencies of debris found in Area VII. A large count in one unit can effectively "color" the interpretation of these flake frequencies. Level 2 in excavation unit X-15, for example, contains almost the entire number of flakes (approximately 24%) of the sample collected from Area VII. If this particular level in X-15 is eliminated from the sample, it is clear that the bulk of the remaining flake debitage is concentrated in the levels immediately below the disturbed zone.

The stratigraphic data also suggests the presence of two prehistoric cultural components at the site. One which appears to occur in levels 2, 3, and 4; and a second one in levels 5, 6, and 7. As the frequencies of flakes are examined stratigraphically, along with the spatial distribution of flakes among the excavation units, it is clear that the greatest concentrations of flakes occur in level 3 and level 6. Graphs drawn of these frequencies clearly indicate the bimodality of the distribution (Figs. 23 and 24).

One possible additional structural feature (feature 2) was uncovered in the area by the EWU archaeologists. This consisted of a cluster of obsidian flakes found in the southeast corner of excavation unit X-21 (ON-1S/21-22W). A few fragments of battered basalt were also found along with the obsidian flakes suggesting a possible activity area. This concentration was so low, however, that its function and purpose could not be determined. Although this feature, feature 2, lies somewhat removed from feature 1 (Pavesic and Meatte 1980), it lies in level 5 (40-50 cm) and probably is an isolated feature associated with the possible household structure (Fig. 25).

Based on these data and that of the spatial distribution of the flake debitage cited above, it would appear to us that feature 1 found in 1979 was an isolated household unit fortuitously found by Pavesic and Meatte. First, the flake densities, even for the excavation units which lie adjacent to the feature, are too low to suggest extensive occupation. Second, nearly all of the flakes found, particularly those in the lower levels of the excavation units, appear to lie at about the same level as those associated with feature 2. This flake distribution--found in the disturbed zone, levels 1, 2,and parts of 3--should not be taken seriously as much of this material is obviously redeposited or otherwise mixed.

The writers have also expressed the opinion that there might be two prehistoric components at the site. Evidence in Area VII for this conclusion is based on the bimodality of the stratigraphic distribution of the flake debitage used above. The authors found the greatest concentration of debris in levels 2, 3, 4 and 5, whereas Pavesic and Meatte found the greatest concentration of debris in levels 5, 6, and 7. If this was the only data that we had available, it would be difficult to substantiate this belief. Fortunately, the artifacts from this locale and the flakes collected from Area VIII tend to support the suggestion of at least two prehistoric cultural components.

Area VIII

Area VIII, the site of the proposed cold storage area, is situated beyond the second asphalt hatchery road well south of the concrete raceways in an area that has been greatly disturbed by recent historical activity (Fig. 9). Almost all of the ten 1 m x 2 m units produced historic materials of very recent origin. Very few of the deposits have prehistoric archaeological materials remaining in situ and these are confined to three 1 m x 2 m units located adjacent to the asphalt road where it would be expected that a minimal amount of disturbance had taken place (Fig. 26).

It would appear that only excavation units X-103 and X-104, X-105 and X-106, and X-115 and X-116 contained any material in any meaningful numbers to be significant. A total of 111 (98.23% of the 113 flakes) collected from Area VIII were found in these units. Stratigraphically, this debris occurs with the greatest frequency in excavation units X-105 and X-106. A total of 71 flakes or 62.83% of the total sample collected from Area VIII was obtained from this 1 m x 2 m unit. Most of these, 55

flakes or 48.67% of the total sample in Area VIII, were obtained from levels 4, 5, and 6. It would appear, based upon these flake frequencies and the artifacts themselves (Part V; The Artifacts), that the materials recovered from Area VIII predate those collected from levels 2, 3, and 4 in Areas VI and VII. However, until C-14 dates are extracted from hearths or from an in situ activity area, this suggestion will remain problematical (Tables 2 and 3).

Historical debris and the historical component is clearly separable from the possible two prehistoric components at both locations: Area VII and Area VIII. Nowhere at the site is this separation more easily seen than in Area VIII. Historical debris was found on or near the surface in almost every unit (Figs. 27 and 28). The greatest density in the case of historical debris occurs in levels 2 and 3, respectively, with a combined total of 13 of the 16 objects found (81.25%) occurring in these two levels (Table 7). It is our opinion that outside of two 1 m x 2 m units located near the asphalt road, that little archaeological debris (prehistoric) exists in Area VIII. It is also our opinion that the prehistoric debris collected in X-103 and X-104, and X-105 and X-106 represent isolated activity areas. We would suspect that this pattern of isolated activity loci to be common and one that is not unusual at the Hagerman locale. A comparison of the natural soil stratigraphy with the disturbed soil stratigraphy is rather striking. In the first case, soils are not well developed but recognizable soil horizons can be seen; in the later case, the soil horizons are readily recognizable in terms of disturbance but the soils themselves do not exist as a series (Figs. 29 and 30).

Figure 11. Close-up View of Bedrock Deposits at the Base of an Excavation Unit.

Figure 12. View of Area VI.

Figure 13. Soil Profile of Excavation Unit, X-1 and X-2, 22-22N/14E.

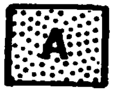
Soil Description

Sod level and surface, single grained sandy loam soil, Dk. Grayish Brown, 10YR4/2, recent sod development.

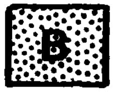
Mixed disturbed soil, single grained sandy soil, fill material, (Ah) horizon, irrigation soil, Dk. Brown 10YR4/3.

Old soil, buried sod layer, not yet decomposed, Dk. Grayish Brown, 10YR4/2.

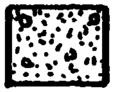
Eroded soil, old possible surface area, aboriginal surface ?, fine sand, laminated in places, Dk. Brown 10YR4/3.



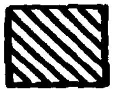
Sand--fine to coarse grain, single grain, no concentration of the sand grains, no $CaCO_3$ cementation of the sand grains, cultural debris present, but non concentrated, flakes, flakes of charcoal, rocks present, moisture change at the boundary, Dk. Brown 10YR5/3.



Dk. Yellowish Brown 10YR5/3, silt loam with some coarse sands present, single grained, nonsticky and nonplastic, no ped development, massive structure.

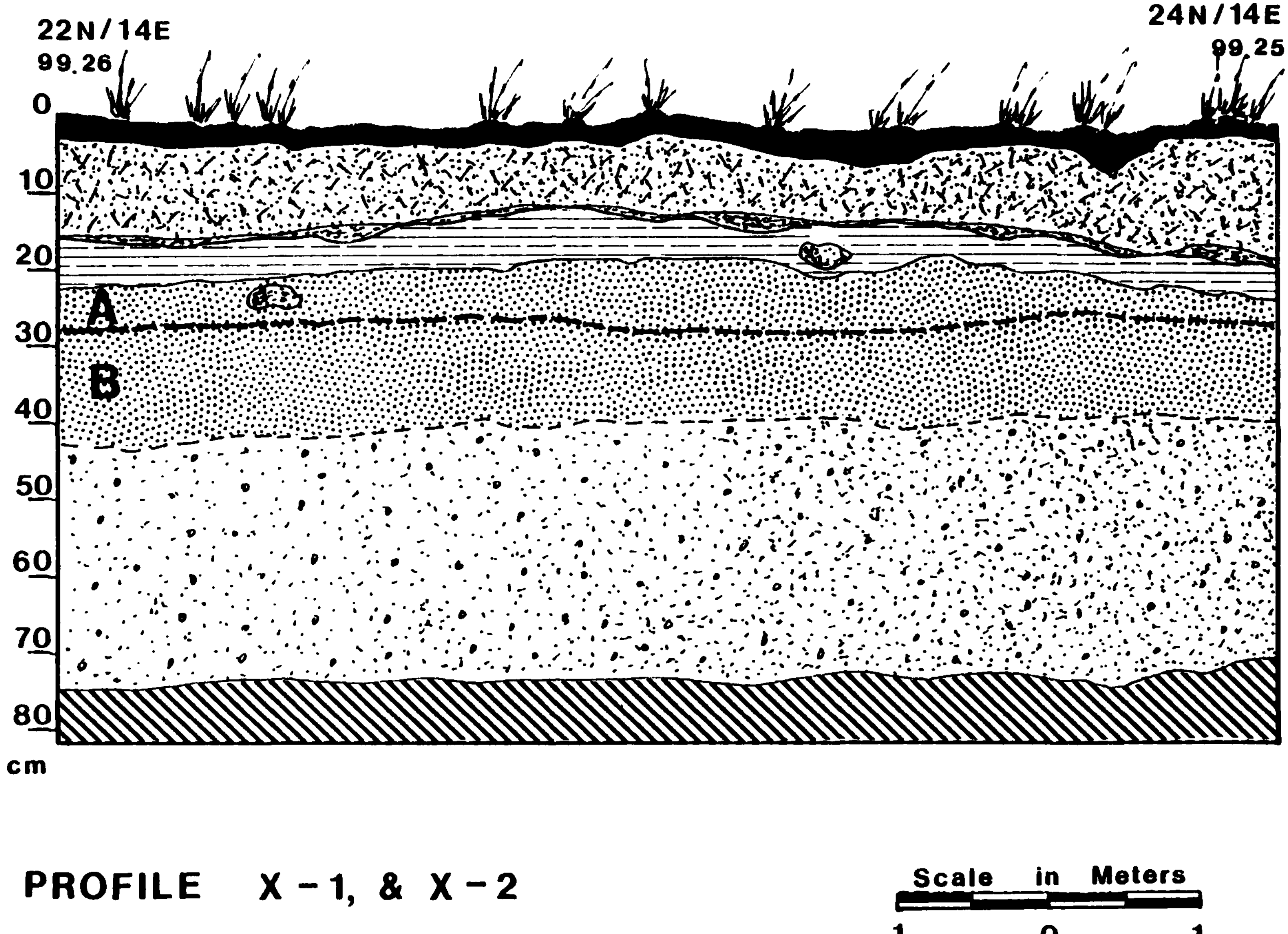


Yellowish Brown 10YR5/4 (wet), water deposited silt loam, single grain sandy soil, grades fine to coarse (top to bottom), some carbonate coating of the sand grains, no concentration, small gravel fragments, isolated and no banded segments, some iron staining in the lowest level.



Unexcavated subsoil.

Large rock fragments (erosional surface).



SOIL PROFILE X-1, & X-2

(22 - 24W / 14E)

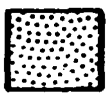
Figure 14. Soil Profile of Excavation Unit, X-3 and X-4, 38-40N/30E.

Soil Description

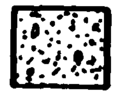
Sod level and surface, single grained sandy loam soil, Dk. Grayish Brown, 10YR4/2, recent sod development.

Mixed disturbed soil, single grained sandy soil, fill material (Ah) horizonal, irrigation soil, Dk. Brown, 10YR4/3.

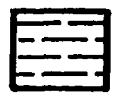
Old soil, possible surface area, aboriginal surface ?, fine sand, laminated in places, Dk. Brown, 10YR4/3.



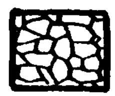
Sand -fine to coarse grain, single grain, no cementation of the sand grains, no $CaCO_3$ cementation of the sand grains, cultural debris present, but non-cemented, flakes in high density in this level and at the contact between the two zones, Dk. Yellowish Brown, 10YR5/3.



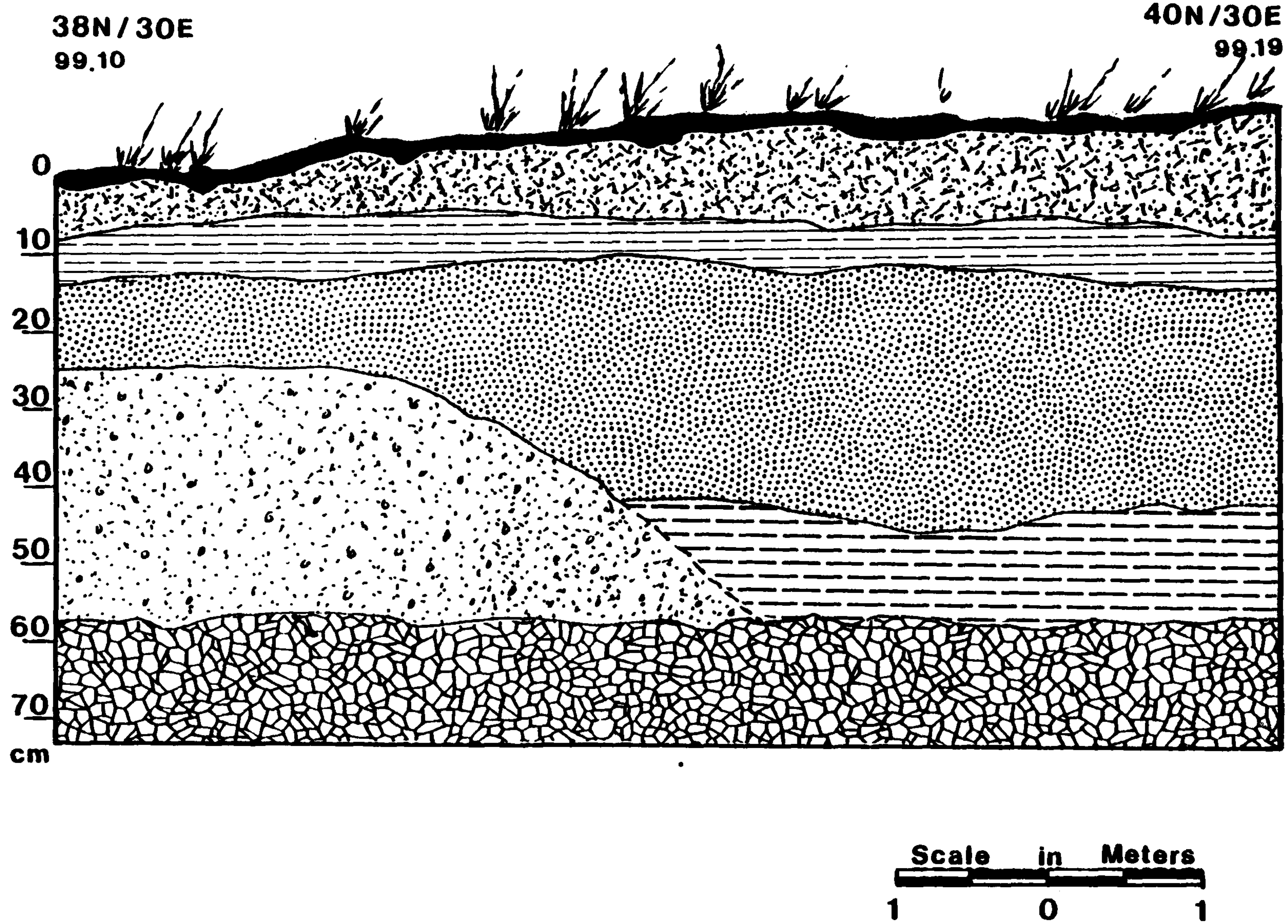
Yellowish Brown 10YR5/4 (wet), apparently water deposited silt loam fine to coarse sandy soil, single grain sandy soil, gradation from coarse to fine (bottom to top), some carbonate coating of the sand grains, no cementation of small sand grains, isolated--no banded deposits, massive structures, some iron staining.



Banded water deposited soil, possible overbank sediment, cut and fill deposit, possibly later than unit "5", sand with $CaCO_3$ cementation--perching of the water table above the basalt--hard pan development above basaltic bedrock.



Basaltic bedrock, vesicular to fine grained.



SOIL PROFILE X-3, & X-4

(38 - 40N / 30E)

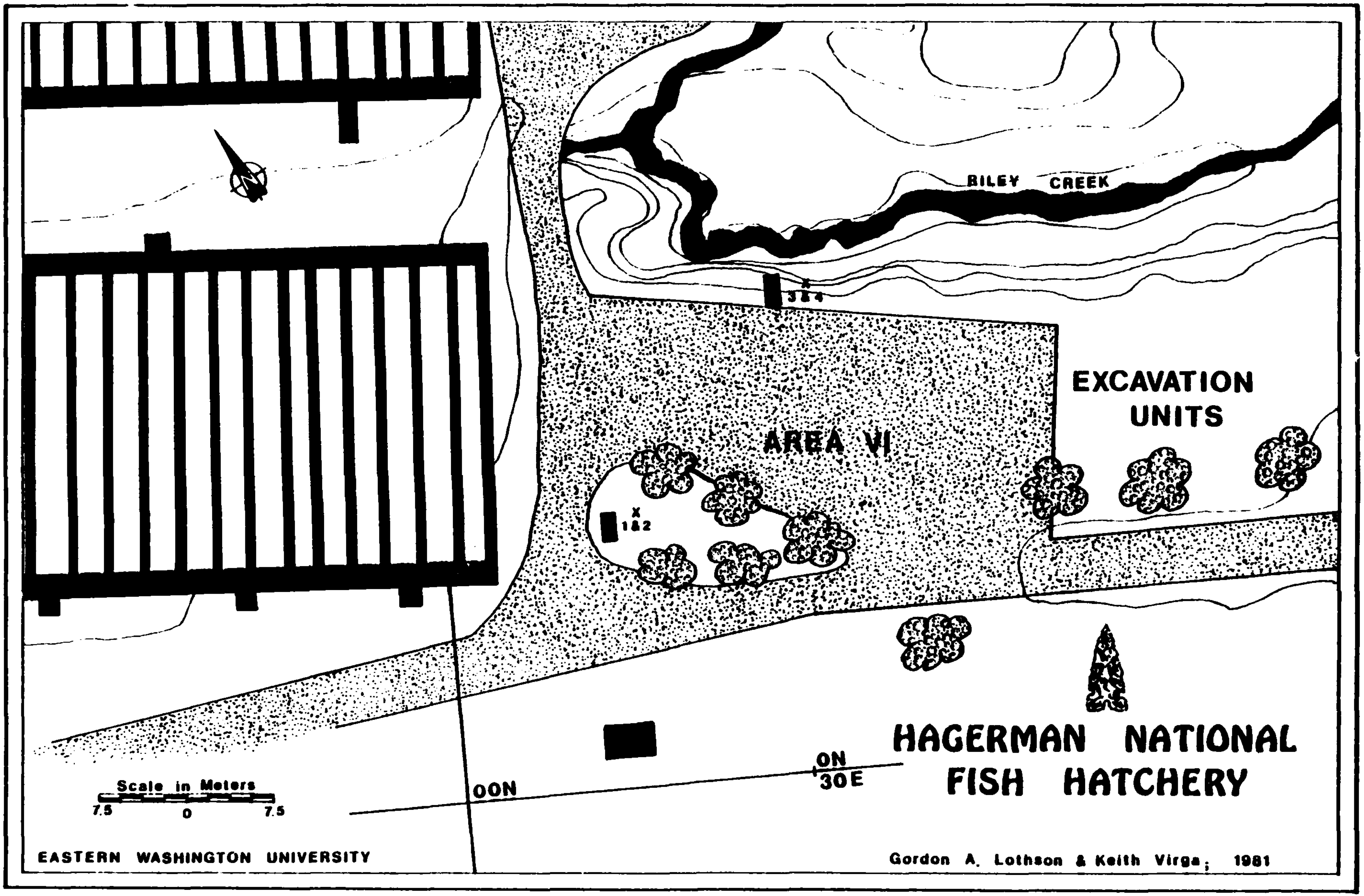
Figure 15. View of Excavation Unit, X-1 and X-2, Looking East, 22-24N/14E.

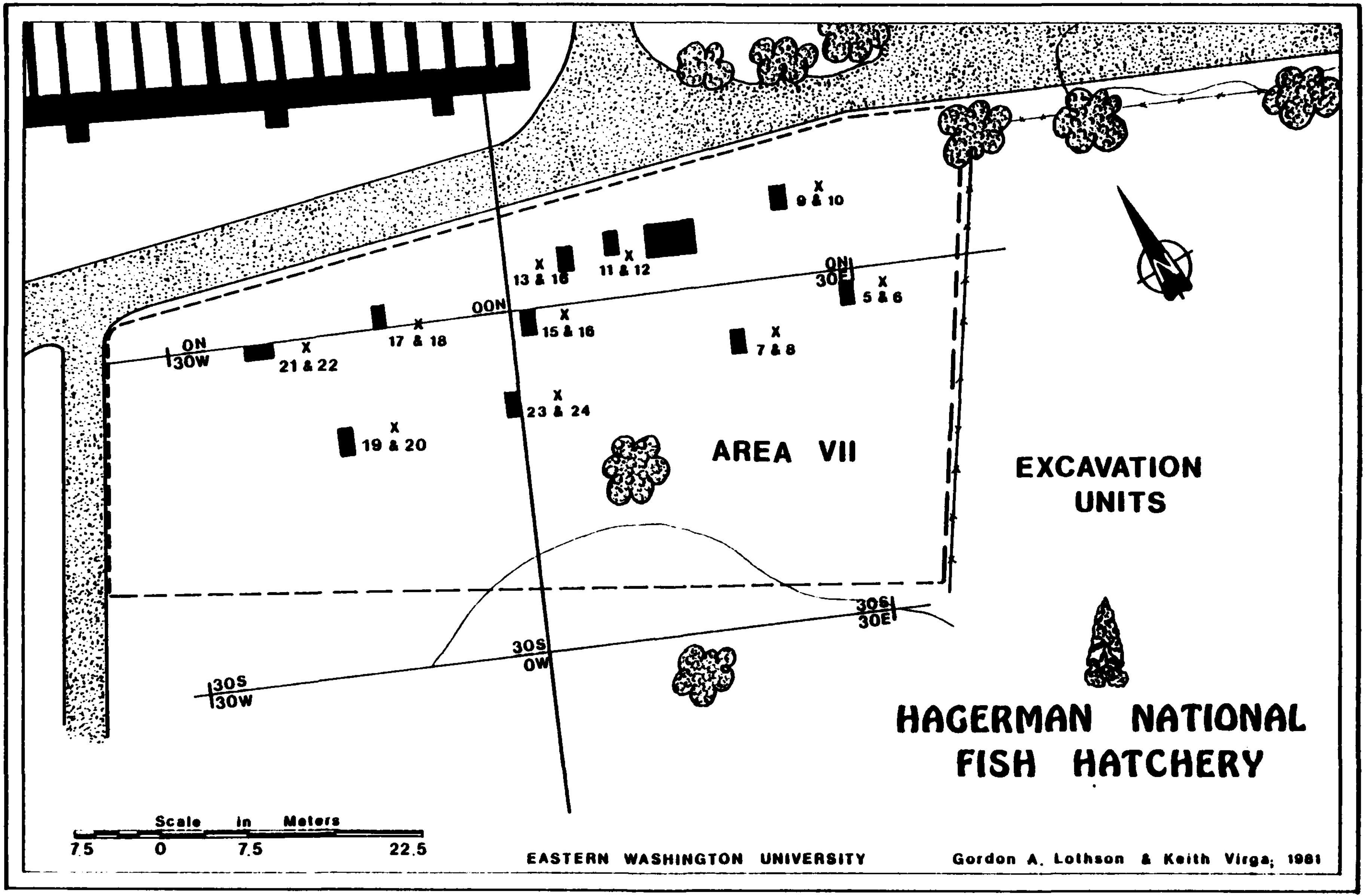
Figure 16. View of Excavation Unit, X-3 and X-4, Looking West, 38-40N/30E.

Figure 17. View of Area VII, Looking East.

Figure 18. View of Area VII, Looking West.

Figure 19. Distribution of Excavation Units in Area VI and Area VII.


BILEY CREEK
X 3 & 4
EXCAVATION UNITS
AREA VI
X 1 & 2
HAGERMAN NATIONAL FISH HATCHERY
0N 30E
00N
Scale in Meters
7.5 0 7.5
EASTERN WASHINGTON UNIVERSITY
Gordon A. Lothson & Keith Virga; 1981



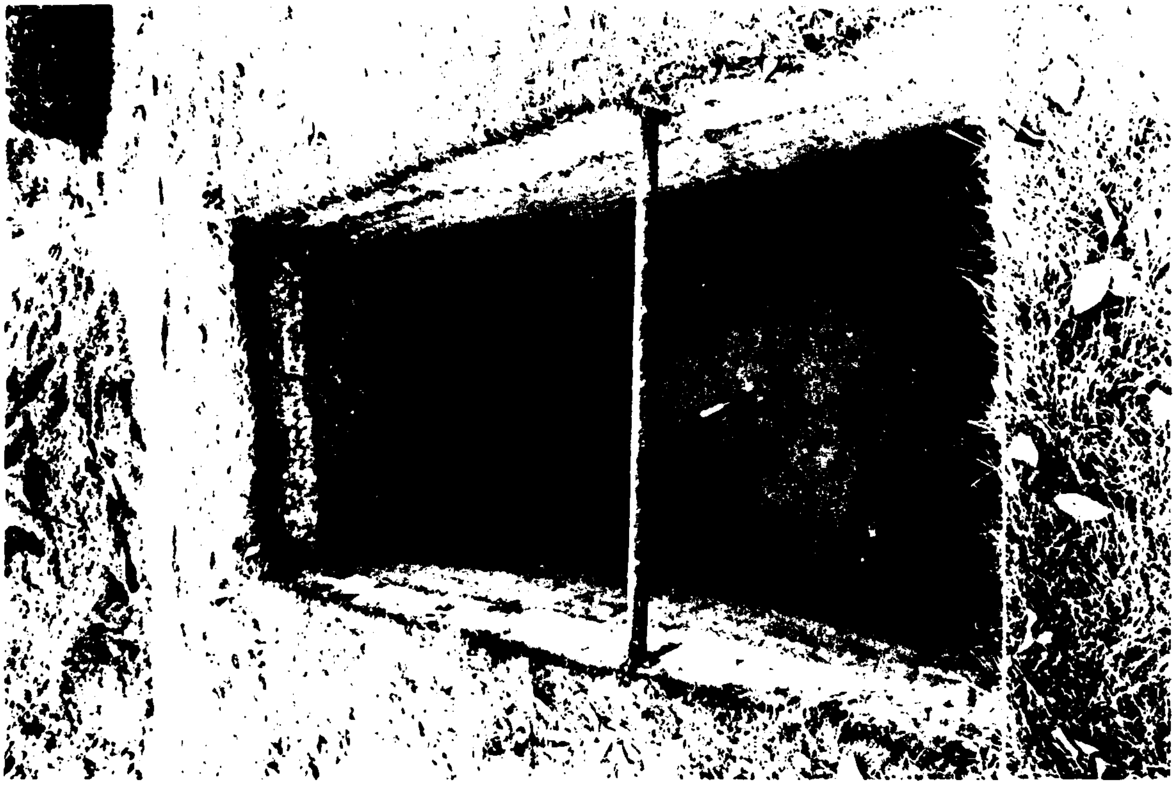
X 9 & 10
X 13 & 16
X 11 & 12
ON 30E
X 5 & 6
OON
X 15 & 16
X 17 & 18
ON 30W
X 21 & 22
X 7 & 8
X 23 & 24
X 19 & 20
AREA VII
EXCAVATION UNITS
30S 30E
30S 0W
30S 30W
HAGERMAN NATIONAL FISH HATCHERY
Scale in Meters
7.5 0 7.5 22.5
EASTERN WASHINGTON UNIVERSITY
Gordon A. Lothson & Keith Virga, 1981

Figure 20. View of One of the Excavation Units Located in Area VIII.

Excavated pipeline and recent disturbance by modern man is shown.

Figure 21. View of One of the Excavation Units Located Near Feature 1, Area VII.

Disturbed soil horizon, buried soil, and irrigation pipe can be noted.



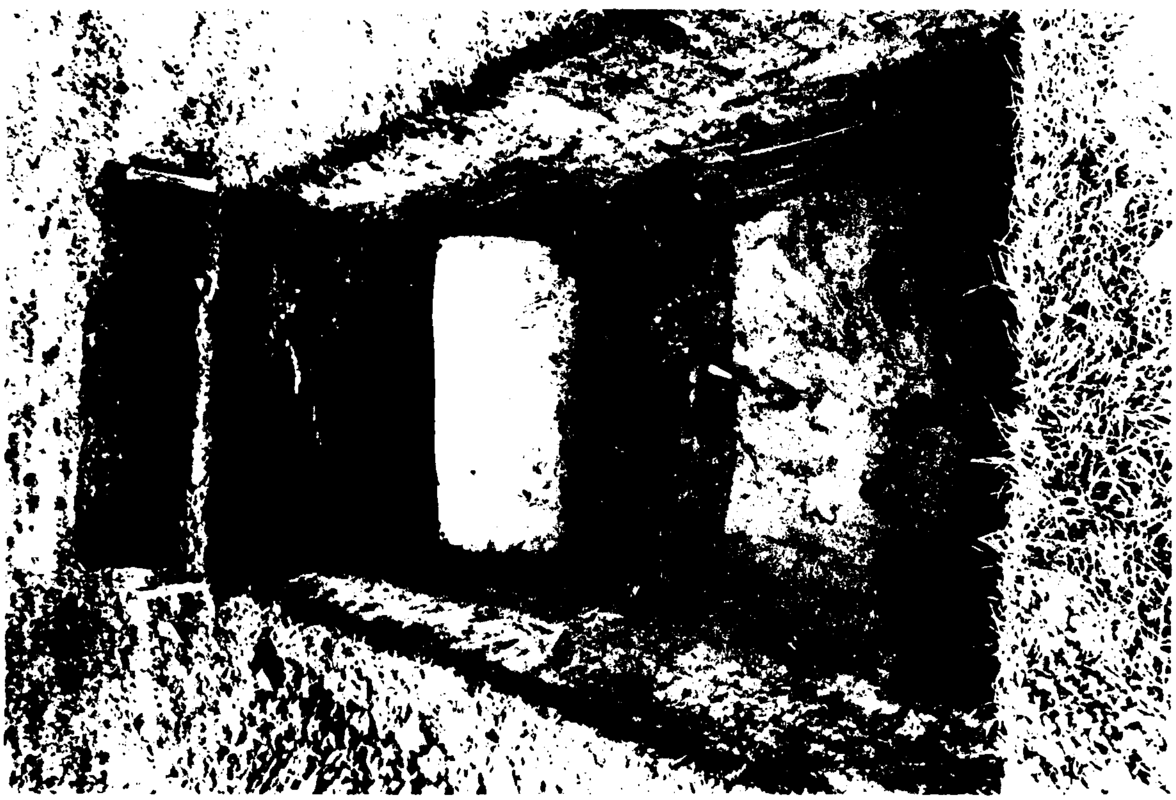
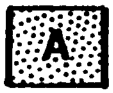


Figure 22. Soil Profile of Excavation Unit, X-21 and X-22, 21-22W/0N.

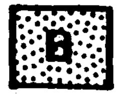
Soil Description

Soil level and surface, single grained sandy loam, recently developed soil, Dk. Grayish Brown, 10YR4/2, recent cultural disturbance (little or no cultural evidence of aboriginal occupation.

Mixed disturbed soil, single grained sandy soil, fill material (Ah) horizon, irrigation soil, Dk. Brown, 10YR4/3 to Dk. Brown 10YR3/3.



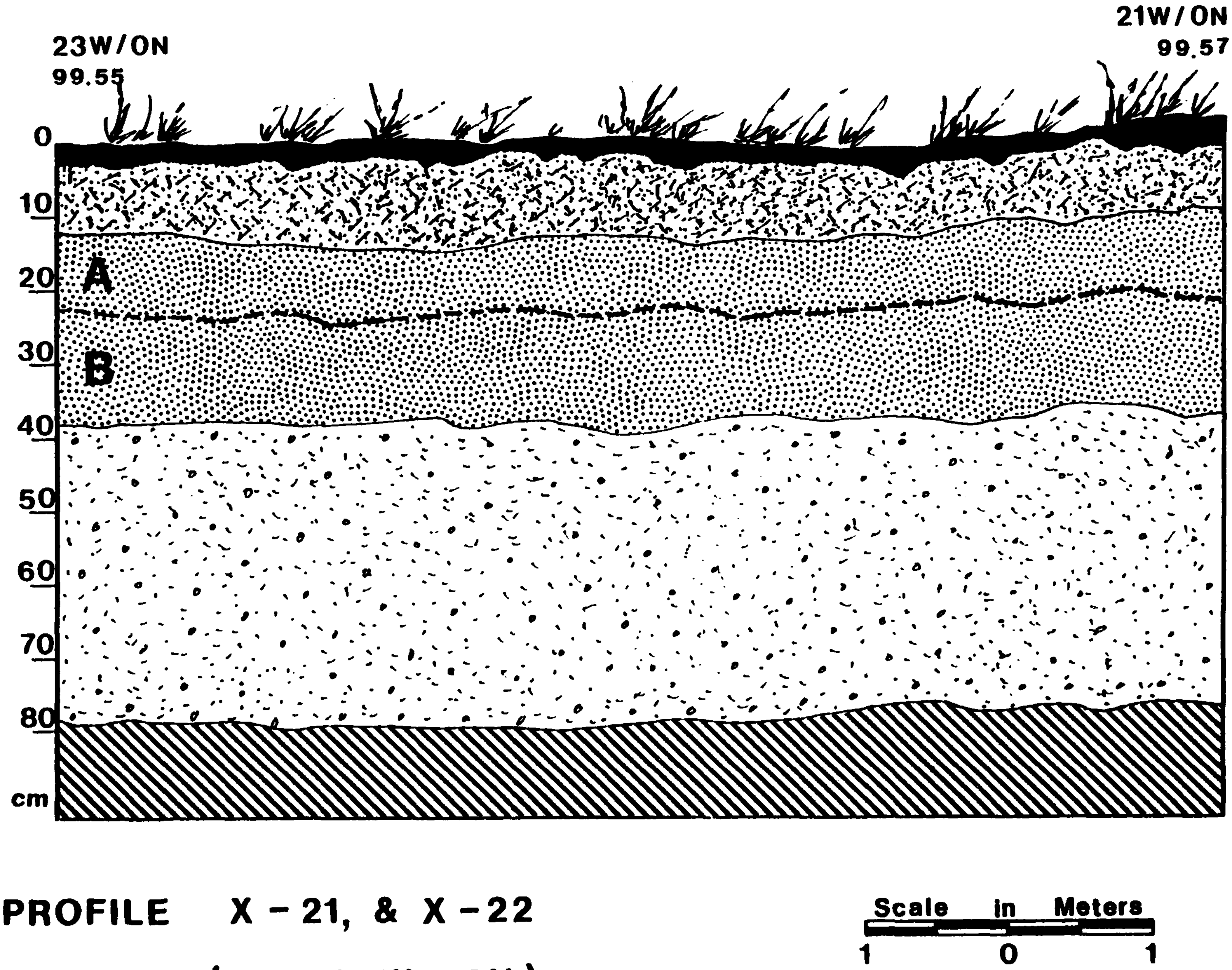
Sandy soil, some iron staining present--fine to coarse grained, single grain structure, no cementation of the sand grain particles, no $CaCO_3$ cementation, cultural horizon ?, no flakes--flakes of charcoal present, Brown to Dk. Yellowish Brown, 10YR4/3.



Dk. Yellowish Brown, 10YR5/3, silt loam with some coarse sand present, single grained, nonsticky and nonplastic, no ped development.

Yellowish Brown, 10YR5/4 (wet), water deposited silt loam, single grained sandy soil, grades fine to coarse, $CaCO_3$ coating of the sand grains--but no cementation of small gravel fragments, which are found isolated--no banded segments, some iron staining in lowest levels.

Unexcavated subsoil.



SOIL PROFILE X – 21, & X – 22

(21 – 23W / ON)

Figure 23. Vertical Distribution of Flake Debris by Excavation Units.

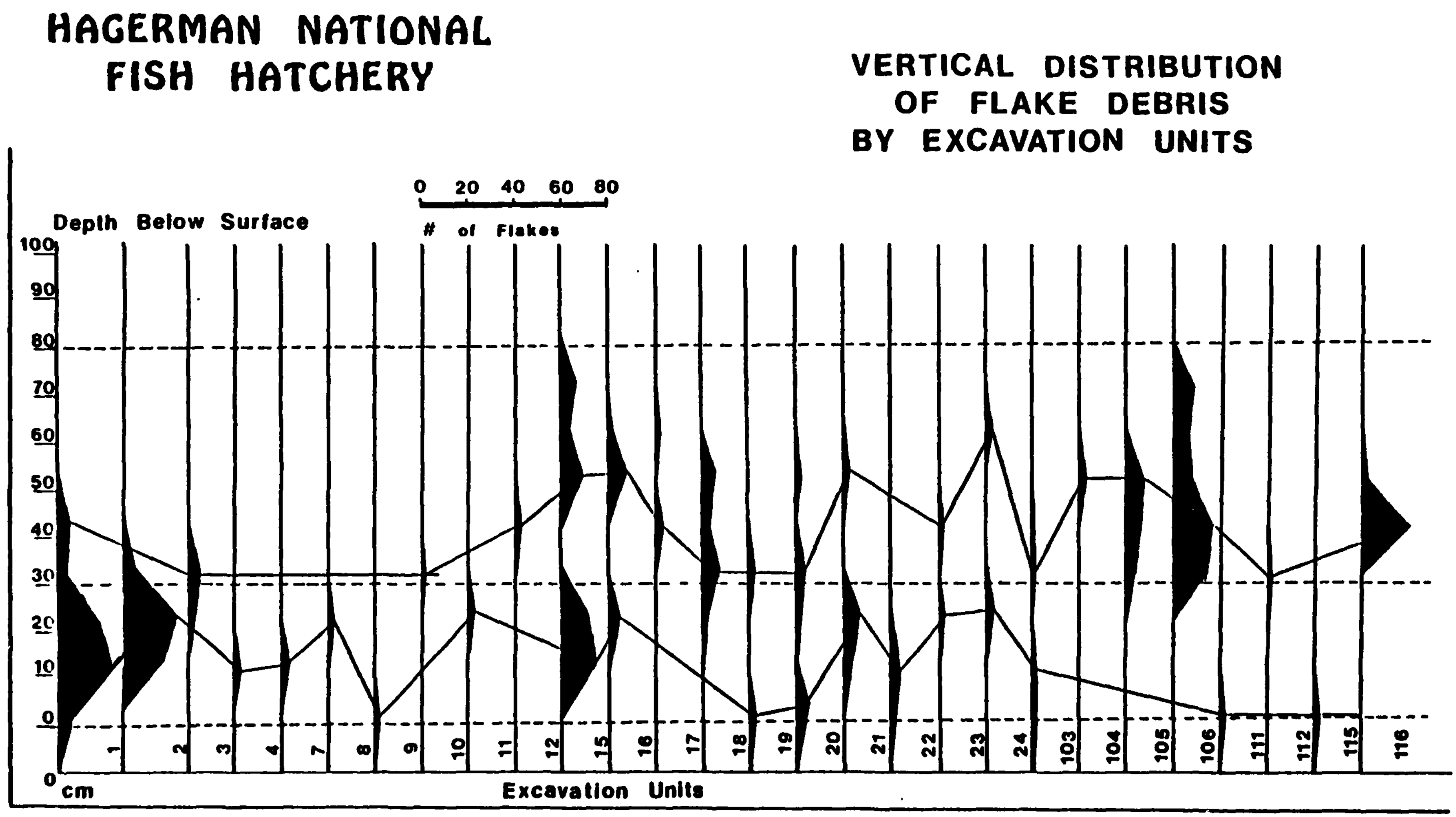

HAGERMAN NATIONAL
FISH HATCHERY
VERTICAL DISTRIBUTION
OF FLAKE DEBRIS
BY EXCAVATION UNITS
0 20 40 60 80
# of Flakes
Depth Below Surface
100
90
80
70
60
50
40
30
20
10
0
0 cm
1
2
3
4
7
8
9
10
11
12
15
16
17
18
19
20
21
22
23
24
103
104
105
106
111
112
115
116
Excavation Units

Figure 24. Spatial Distribution of Flake Debris by Excavation Units.

HAGERMAN NATIONAL FISH HATCHERY

SPATIAL DISTRIBUTION OF FLAKE DEBRIS BY EXCAVATION UNITS

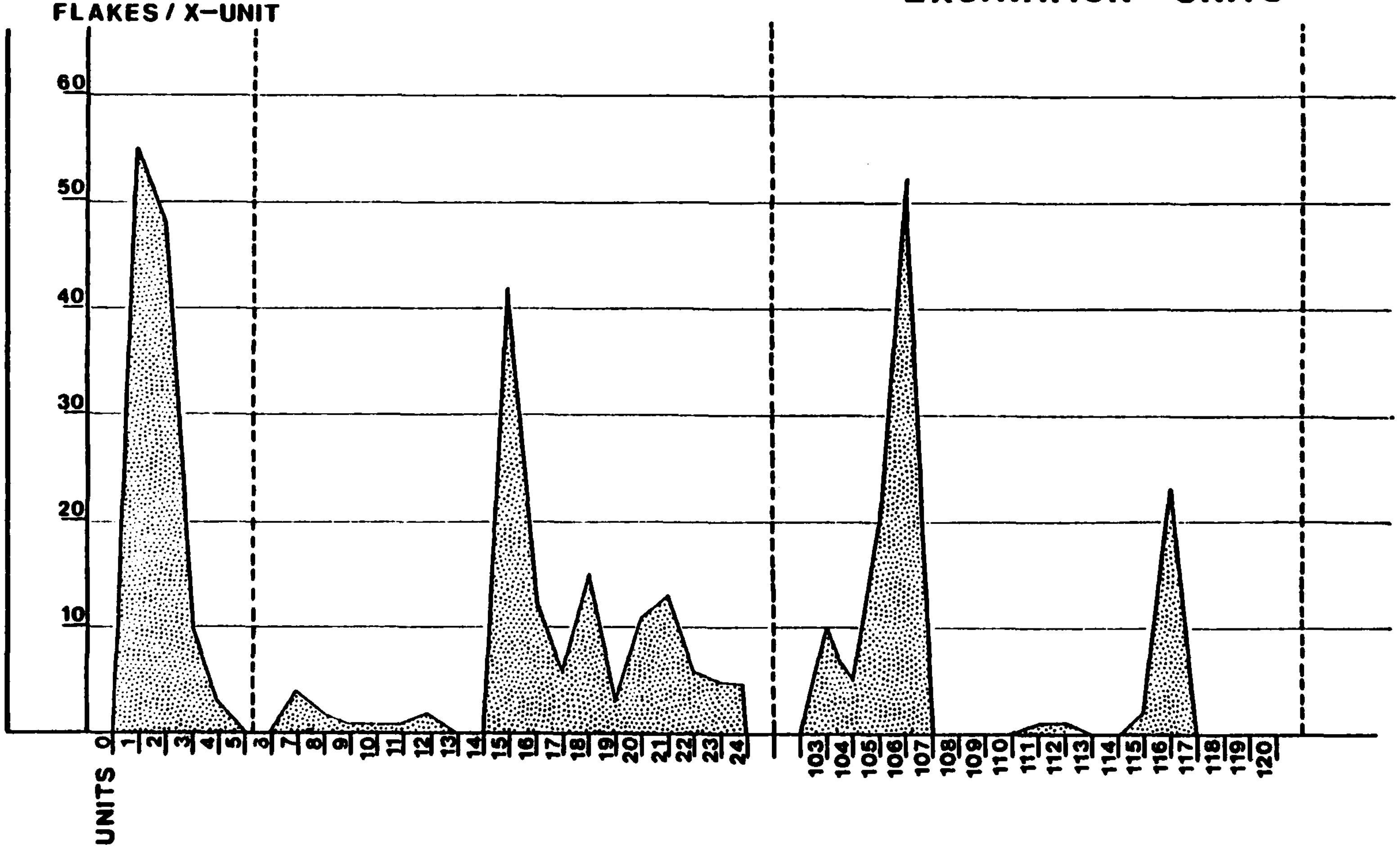
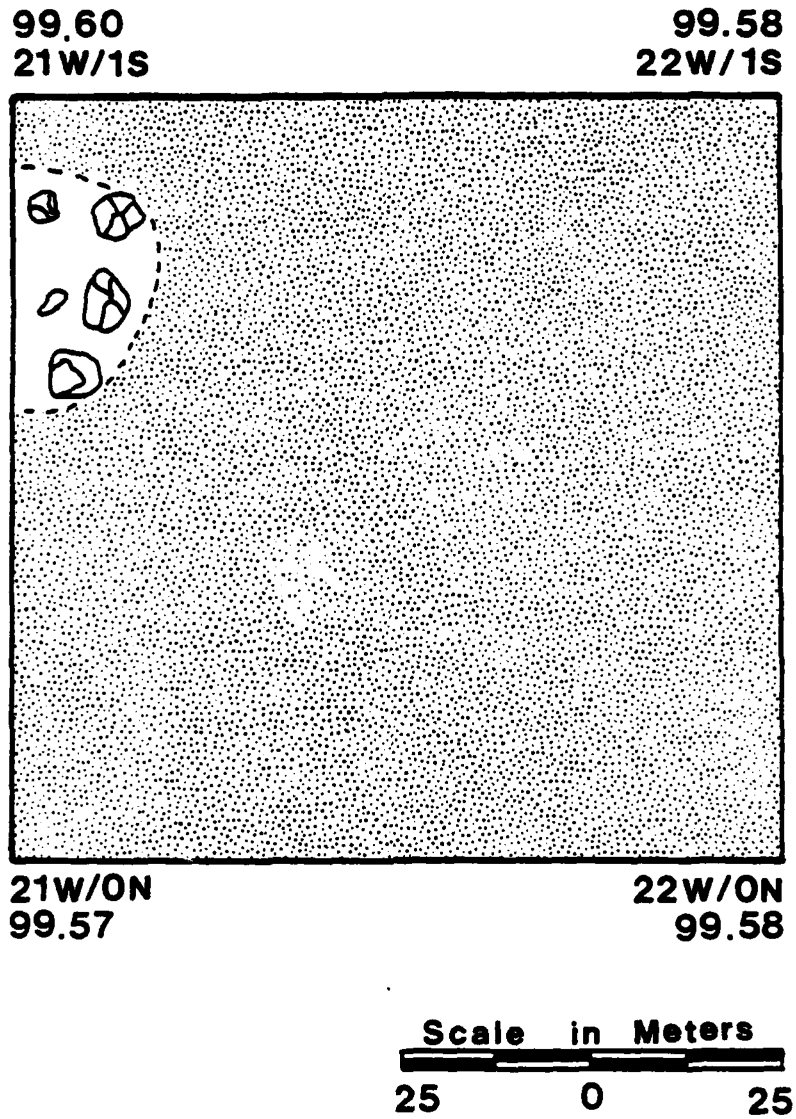


Figure 25. Feature 2, Located in X-21, ON-1S/21-22W, Area VII.

EXCAVATION UNIT, X-21



FEATURE 2

Basalt Stones
EL. 99.14m

Figure 26. Distribution of Excavation Units in Area VIII.

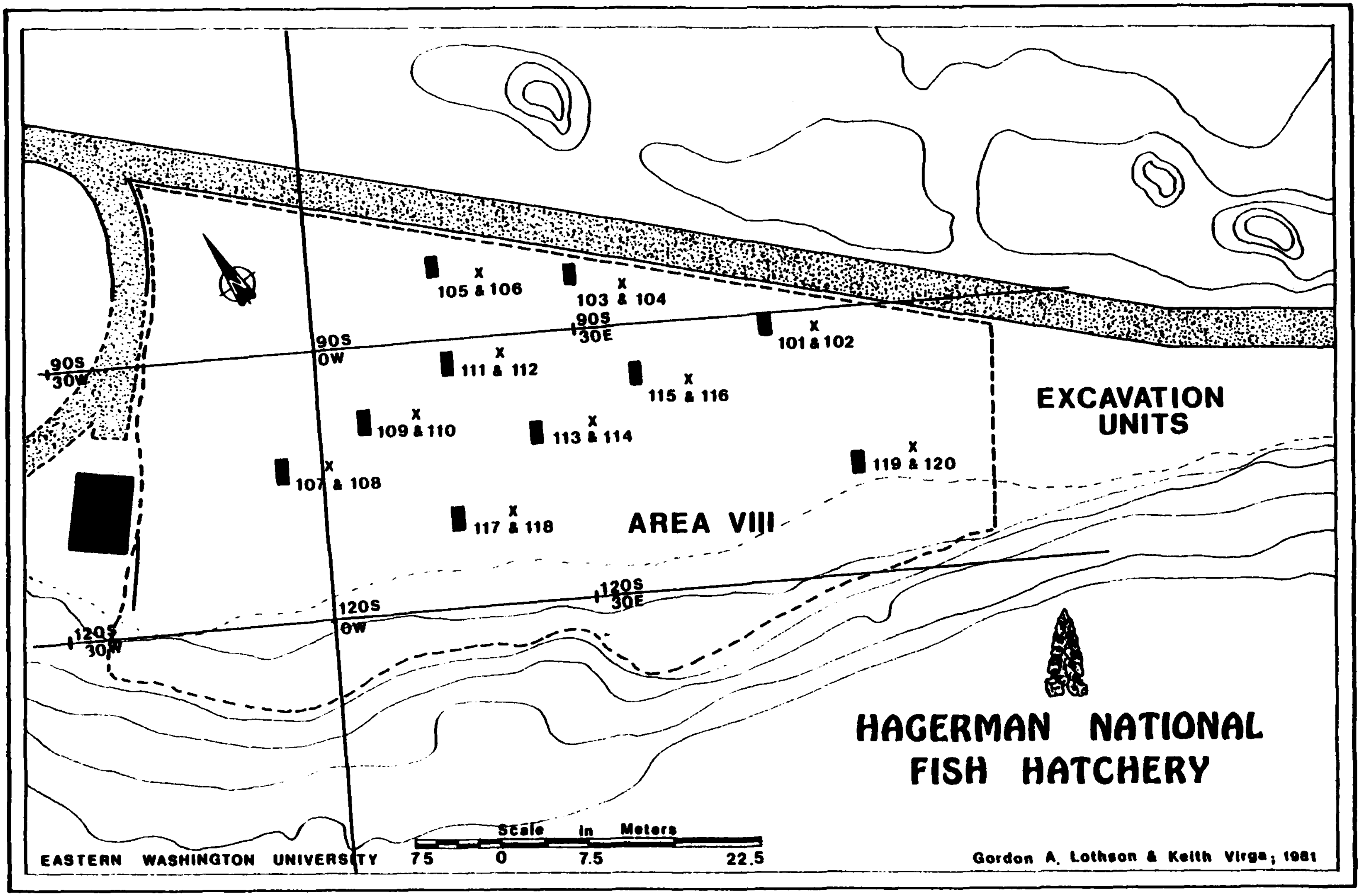

EXCAVATION UNITS
HAGERMAN NATIONAL FISH HATCHERY
AREA VIII
105 & 106
103 & 104
101 & 102
111 & 112
115 & 116
109 & 110
113 & 114
107 & 108
119 & 120
117 & 118
90S 30W
90S 0W
90S 30E
120S 30W
120S 0W
120S 30E
Scale in Meters
7.5 0 7.5 22.5
EASTERN WASHINGTON UNIVERSITY
Gordon A. Lothson & Keith Virga; 1981

Figure 27. View of Excavation Unit, X-109 and X-110, Looking North.

Figure 28. View of Excavation Unit, X-107 and X-108, Looking East.

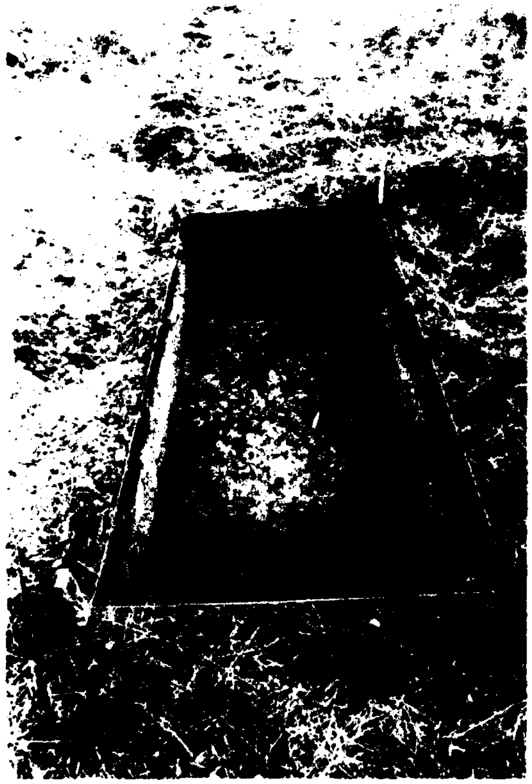


Figure 29. View of Excavation Unit, X-105 and X-106, Looking North at Side Wall.

Buried tree on an errosional surface--natural soil profile can be noted.

Figure 30. View of a Disturbed Soil Profile, Area VII.

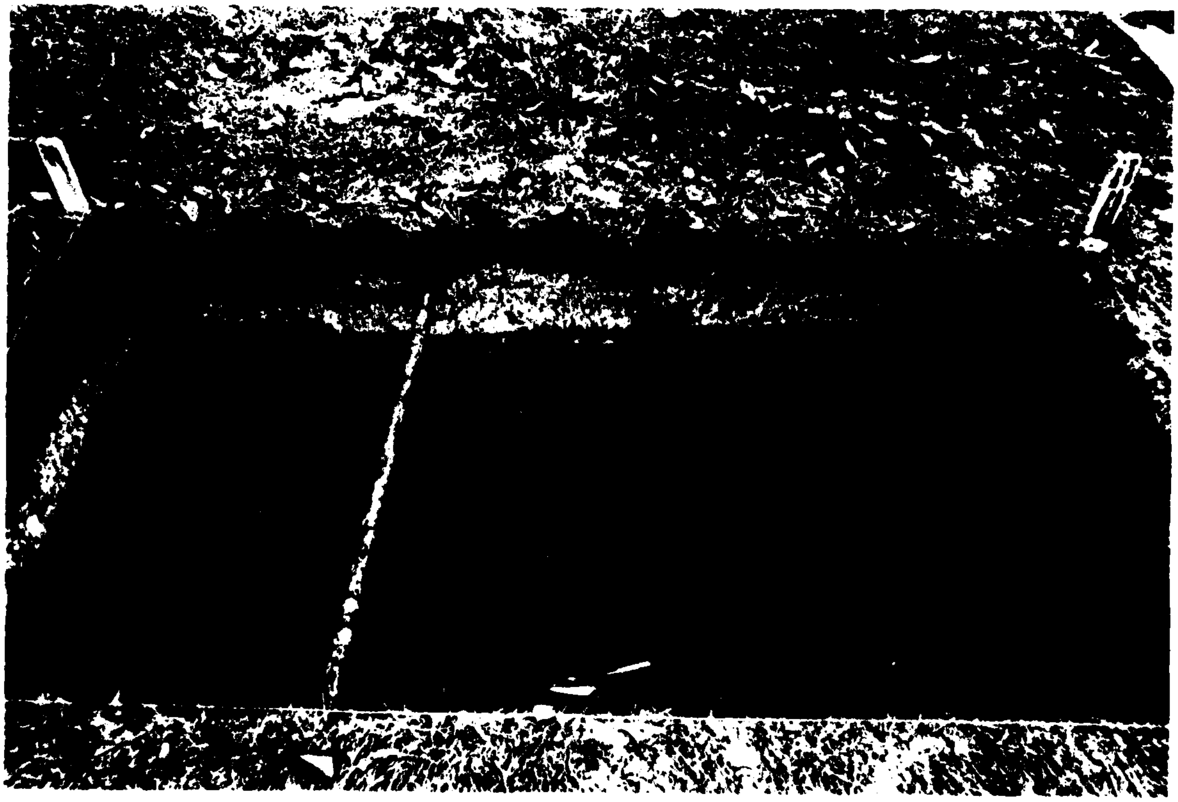


TABLE 2

THE DISTRIBUTION OF FLAKES AND CHIPS
TOTAL FLAKES BY EXCAVATION UNIT

	1 0-10	2 10-20	3 20-30	4 30-40	5 40-50	6 50-60	7 60-70	8 70-80	#	%
AREA VI AND AREA VII										
X-1	8	23	15	2	5	2	-	-	55	22.36
X-2	-	16	23	6	1	2	-	-	48	19.51
X-3	-	1	2	6	1	-	-	-	10	4.07
X-4	-	2	-	-	-	1	-	-	3	1.22
X-5	-	-	-	-	-	-	-	-	0	0.00
X-6	-	-	-	-	-	-	-	-	0	0.00
X-7	-	3	1	-	-	-	-	-	4	1.63
X-8	-	-	2	-	-	-	-	-	2	0.81
X-9	1	-	-	-	-	-	-	-	1	0.41
X-10	-	-	-	1	-	-	-	-	1	0.41
X-11	-	-	1	-	-	-	-	-	1	0.41
X-12	-	-	-	-	2	-	-	-	2	0.81
X-13	-	-	-	-	-	-	-	-	0	0.00
X-14	-	-	-	-	-	-	-	-	0	0.00
X-15	-	14	11	-	-	8	3	6	42	17.07
X-16	-	-	4	-	-	7	2	-	13	5.29
X-17	-	-	-	1	3	-	2	-	6	2.44
X-18	-	-	2	6	2	4	-	1	15	6.10
X-19	1	-	-	2	-	-	-	-	3	1.22
X-20	5	-	2	3	-	1	-	-	11	4.47
X-21	-	-	4	7	-	2	-	-	13	5.29
X-22	-	2	3	1	-	-	-	-	6	2.44
X-23	-	-	2	-	2	1	-	-	5	2.03
X-24	-	-	3	-	-	2	-	-	5	2.03
Totals	15	61	75	35	16	30	7	7	246	100.02
	6.10	24.80	30.49	14.23	6.50	12.20	2.85	2.85	100.02	%
AREA VIII										
X-103	2	2	-	2	-	-	4	-	10	8.85
X-104	2	-	-	-	-	3	-	-	5	4.43
X-105	-	-	1	4	6	7	-	1	19	16.81
X-106	-	-	-	13	17	8	6	8	52	46.02
X-111	1	-	-	-	-	-	-	-	1	0.89
X-112	-	-	-	1	-	-	-	-	1	0.89
X-115	2	-	-	-	-	-	-	-	2	1.77
X-116	-	-	-	-	21	2	-	-	23	20.35
Totals	7	2	1	20	44	20	10	9	113	100.01
	6.20	1.77	0.89	17.70	38.94	17.70	8.85	7.97	100.02	%
Combined	22	63	76	55	60	50	17	16 =	359	
Totals	6.13	17.55	21.17	15.32	16.71	13.93	4.73	4.46	100.00	%

TABLE 3

THE DISTRIBUTION OF BONE AND BONE FRAGMENTS
TOTAL BONE FRAGMENTS BY EXCAVATION UNIT

	1 0-10	2 10-20	3 20-30	4 30-40	5 40-50	6 50-60	7 60-70	8 70-80	#	%
AREA VI AND AREA VII										
X-1	-	-	-	26	-	-	-	-	26	26.80
X-2	-	1	15	23	-	-	-	-	39	40.21
X-3	-	6	-	-	-	-	-	-	6	6.19
X-9	-	1	-	-	-	-	-	-	1	1.03
X-15	-	1	-	-	-	-	-	-	1	1.03
X-16	-	-	1	-	-	-	-	-	1	1.03
X-17	-	-	-	2	-	-	-	-	2	2.06
X-19	-	-	-	-	1	-	-	-	1	1.03
X-20	-	4	10	-	-	-	-	-	14	14.43
X-22	-	1	-	-	-	-	-	-	1	1.03
X-24	-	3	1	-	-	1	-	-	5	5.16
Totals	0	17	27	51	1	1	0	0	97	100.00
	0.00	17.53	27.84	52.58	1.03	1.03	0.0	0.0	100.01	%
AREA VIII										
X-103	-	-	-	-	-	-	2	-	2	4.88
X-104	-	-	-	-	-	3	-	-	3	7.32
X-105	-	1	-	4	9	-	-	-	14	34.15
X-106	-	-	-	7	9	1	1	-	18	43.90
X-112	1	-	-	-	-	-	-	-	1	2.44
X-116	-	2	-	-	1	-	-	-	3	7.32
Totals	1	3	0	11	19	4	3	0	41	100.01
	2.44	7.32	0.0	26.83	46.34	9.76	7.32	0.0	100.01	%

TABLE 4

THE DISTRIBUTION OF SHELL FRAGMENTS,
TOTAL NUMBERS BY EXCAVATION UNIT

	1 0-10	2 10-20	3 20-30	4 30-40	5 40-50	6 50-60	7 60-70	8 70-80	#	%
AREA VI AND AREA VII										
X-1	1 20.00	2 40.00	2 40.00	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	5 100.00	100.00 %
AREA VIII										
Not Applicable										

TABLE 5

THE DISTRIBUTION OF ARTIFACTS
TOTAL NUMBERS BY EXCAVATION UNIT

	1 0-10	2 10-20	3 20-30	4 30-40	5 40-50	6 50-60	7 60-70	8 70-80	#	%

TABLE 6

THE DISTRIBUTION OF GROUND STONE AND BROKEN ROCK
TOTAL NUMBERS BY EXCAVATION UNIT

	1 0-10	2 10-20	3 20-30	4 30-40	5 40-50	6 50-60	7 60-70	8 70-80	#	%
AREA VI AND AREA VII										
Not Applicable										
AREA VIII										
X-105	-	1	-	1	-	-	-	-	2	11.77
X-106	-	1	-	-	-	-	-	-	1	5.88
X-109	-	1	-	-	-	-	-	-	1	5.88
X-111	1	2	-	-	-	-	-	-	3	17.65
X-112	-	-	-	-	-	-	10	-	10	58.82
Totals	1	5	0	1	0	0	10	0	17	100.00
	5.88	29.41	0.0	5.88	0.0	0.0	58.82	0.0	99.99	%

TABLE 7

THE DISTRIBUTION OF HISTORIC ARTIFACTS
TOTAL NUMBERS BY EXCAVATION UNIT

	1 0-10	2 10-20	3 20-30	4 30-40	5 40-50	6 50-60	7 60-70	8 70-80	#	%
AREA VI AND AREA VII										
X-1	1	-	-	-	-	-	-	-	1	1.45
X-2	-	1	-	-	-	-	-	-	1	1.45
X-3	6	9	-	-	-	-	-	-	15	21.74
X-4	-	3	-	1	-	-	-	-	4	5.80
X-15	-	4	-	-	-	-	-	-	4	5.80
X-16	-	1	6	-	-	-	-	-	7	10.15
X-17	-	4	-	-	-	-	-	-	4	5.80
X-19	1	2	-	-	-	-	-	-	3	4.35
X-20	1	2	-	-	-	-	-	-	3	4.35
X-21	-	-	4	-	-	-	-	-	4	4.35
X-22	-	2	-	-	-	-	-	-	2	2.90
X-23	-	3	2	-	-	-	-	-	5	7.25
X-24	7	5	4	-	-	-	-	-	16	23.19
Totals	16	36	16	1	0	0	0	0	69	100.03
	23.19	52.17	23.19	1.45	0.0	0.0	0.0	0.0	100.00	%
AREA VIII										
X-103	-	-	-	-	-	-	1	-	1	6.25
X-104	-	2	-	-	-	-	-	-	2	12.50
X-105	-	2	6	1	-	-	-	-	9	56.25
X-106	-	2	-	1	-	-	-	-	3	18.75
X-109	-	1	-	-	-	-	-	-	1	6.25
Totals	0	7	6	2	0	0	1	0	16	100.00
	0.0	43.75	37.50	12.50	0.0	0.0	6.25	0.0	100.00	%

TABLE 8

A COMPARISON OF TWO STRATIGRAPHIC EXCAVATIONS
IN AREA VI
HAGERMAN FISH HATCHERY SITE
HAGERMAN, IDAHO

22-23N/14-15E	38-39N/30-31E
0-10 cm: sod layer to mixed disturbed soils; 4 flakes, 1 biface fragment, bits of charcoal.	0-10 cm: sod layer to slightly mixed disturbed soils; historic artifacts: a nail and fragments of concrete.
10-20 cm: hard compacted mixed disturbed soils; 24 flakes, 1 biface projectile point base, shell, etc.	10-20 cm: transition from hard mixed soil to dark brown sand, buried soil; nails, staples, glass, ceramic sherd, projectile point.
20-30 cm: hard compacted soil to light friable dark brown soil (buried soil); 14 flakes, 1 piece coal and bits of thermally fractured rock.	20-30 cm: medium sandy soils, dark brown; a few obsidian flakes, old buried soils, bits of fractured rock.
30-40 cm: soft, wet sandy soil matrix; 8 flakes and 22 chips of obsidian.	30-40 cm: brown sand, silt and many fragments of rocks; two angular basalt rocks, 4 obsidian flakes, soil compacted.
40-50 cm: soft, wet sandy soil; no artifacts.	40-50 cm: no charcoal present, light sandy soil; one obsidian flake.
50-60 cm: soft moist sandy soil; two flakes.	50-60 cm: very light colored soils, soil is very compacted; no artifacts.
60-70 cm: soft moist sandy soil; no artifacts.	60-70 cm: water reworked cobbles, natural soil (!), coarse sand, loose consolidation; no artifacts.
70-100 cm: soft wet sandy soil, no artifacts.	70-80 cm: rotted basalt, bedrock at base, very light sandy soil, $CaCO_3$ perching of the water table above the bedrock; no artifacts.

PART V

THE ARTIFACTS

The artifacts collected from the HNFH site consist primarily of lithic debitage, but a few fragments of bone, shell, ground stone, and historic materials were found. The classification of these materials as presented here has been organized on a purely descriptive basis. No attempt has been made to either determine a cultural association (archaeological phase) or to compare these materials to other geographical locations. The investigators have tried, however, to indicate a general temporal period for the artifacts found and to suggest a very general function for the site based upon these materials. For the purposes of description, therefore, the excavated materials have been divided into flaked stone materials; ground stone materials; bone (faunal non-worked and faunal worked), shell, and historic debris. It is possible that a more sophisticated approach could be undertaken which would involve the spatial distribution, faunal identification, lithic technological analysis, etc., of the excavated debris. As noted in the introduction to this report, such studies go well beyond both the scope of work as outlined by the archaeological coordinator and also beyond the needs of this present study. Such an interpretation should be done at the Phase III mitigation level and such studies should also include the materials excavated by Pavesic and Meatte.

The Flaked Stone Materials

The flaked stone artifacts and flake debitage recovered from the HNFH site consist of a number of chipped stone objects: flake debitage

(waste flakes) and retouched flakes, bifacially flaked points and scrapers. These categories, too, are basically descriptive categories and have been defined in terms of their morphological characteristics as opposed to their implied function.

Flake Debitage

A total of 359 waste flakes and chips were collected from the HNFH site during the Phase II testing of three archaeological areas. Some 116 flakes (32.31%) were collected from Area VI, an additional 130 flakes (36.21%) from Area VII, and a slightly smaller number of 113 (31.47%) were found in Area VIII. Most of the flakes have well developed, striking platforms and bulbs of percussion suggesting that they had been removed from a larger tool or core, but some chips, probably representing shatter or broken flakes, were also found (Table 9). All of these have been included here under the general term flake debitage, indicating that they were the by-product of tool manufacture (Crabtree 1972).

Most of the flakes and chips obtained from the three areas were relatively small percussion flakes of 25 mm size or smaller. A comparison of flake sizes indicates that 343 (95.54% of the total number of flakes found at the site) were smaller than 25 mm with only seven flakes of the 30 mm size (1.95%), five flakes of the 35 mm size (1.39%), three flakes of the 40 mm size (0.84%), and one flake of the 45 mm size (0.28%). The greatest number of flakes found were of the 15 mm size, 122 flakes, 33.98% of the total sample. This may suggest that no fine pressure flaking was done at the site. However, we would strike a note of caution here as all of the soil matrix excavated from the site was put through a ¼ inch mesh screen and flakes smaller than 10 mm could have escaped the watchful eye of the excavators by passing through the screen when it was shaken. Fine screen-

ing of the soil matrix with screen of 1/8 inch mesh or smaller might be useful in determining if fine pressure flaking was done at the locale or where these activities might have occurred. Another avenue of research which might be more useful for future studies involves the detailed lithic technology employed at the site. Such studies go beyond the scope of work outlined, and would be more appropriately undertaken at the Phase III mitigation level of analysis.

When the frequency of site materials is examined in terms of the types of stone used by the tool makers, it is rather apparent that certain materials were preferred over other materials. Obsidian, for example, was by far the most preferred material used by the inhabitants of the site. Obsidian flakes account for nearly 57.10% (205 flakes) of the flakes found with lesser frequencies of basalt (12.54%, 45 flakes), brown chert (8.08%, 29 flakes), white chert (5.85%, 21 flakes), red brown chert (1.95%, 7 flakes), felsite (0.84%, 3 flakes), and chalcedony (0.56%, 2 flakes).

When the size frequencies with material preferred frequencies are compared, no real difference in material utilization is found. It is not found, for example, that large flakes were made almost exclusively of basalt and small flakes were of obsidian. The idea that obsidian was used primarily for small projectile points, knives, scrapers, and drills, and basalt and other volcanics for choppers, as is the case in the Columbia Basin, does not appear to hold up very well (Table 9). Even when a ranking system is applied in which the data is ranked both by increasing numerical frequency of size and by material, any meaningful difference cannot be seen in the materials utilized (Table 10).

Retouched Flakes

Only two retouched flakes were found at the HNFH site during the 1980 Phase II testing at Hagerman. Both flakes were bifacially flaked on one edge and may have been parts of larger artifacts (Table 11).

Bifaces: Projectile Points and Bifaces (Large)

Two types of bifaces were collected from the HNFH site: small projectile points (Figs. 31, 32, 33, and 34) and large biface blanks (Fig. 35). The large bifaces are non-diagnostic of any prehistoric period, but the smaller projectile points do give a general date for the occupation of the site. According to Butler (1968), among the most common small projectile points that occur during the late prehistoric period were those of the "Bitterroot side-notched" and "desert side-notched" types and those that appear to be projectile points of the corner-notched (possibly Columbia Valley corner-notched) types. Pavesic and Meatte (1980:123) recognize six different projectile point types: Rose Springs corner-notched, Bliss, Elko side-notched, Eastgate expanding stem, Elko eared, and Elko corner-notched. We feel that the types and comparisons made by Pavesic and Meatte to be more useful for descriptive purposes and have retained their types as opposed to those discussed by Butler (1968). A total of four small projectile points and three large biface fragments were found at the site. All of these fit into one of the six groups discussed by Pavesic and Meatte (Table 11).

Scrapers

Only three scrapers, flakes with one retouched edge and possibly used to remove fat and hair from hides, were found at the HNFH site (Figs. 36, 37, and 38). Two of the scrapers were recovered from Areas

VI and VII, situated near Riley Creek, and the remaining scraper was found in X-106 located near the asphalt road in Area VIII. Two of the scrapers were made of flakes of obsidian and showed very little wear on the edges, whereas the fine grained, gray-black chert scraper appeared to exhibit use and was apparently struck from a prepared core. It is made the same way as Levallois flakes are removed from a core (Cole and Higgs 1968:215-219; Braidwood 1975:47) (Table 11).

Ground Stone Materials

One fragmentary piece of what appears to have been a ground stone mano or grinding stone was collected from the HNFH site (Fig. 39). This fragment was collected with about 17 other fragments of ground stone from Area VIII. No ground stone objects were found associated with any recognizable discernable structural feature at the site. The other 16 fragments were firecracked pieces which may or may not have been used or employed in stone boiling. Only the recognizable artifact, the ground stone object or pestle is described (Table 11).

Bone, Shell and Historic Debris

A number of historical artifacts were found at the HNFH site. These items consist of fragments of glass, pottery, nails, a penny, and a few other assorted items of very recent origin. Most of this material is very recent and fragmentary, and of very little value in terms of cultural resource management. There are a large number of sites where historical materials of the 1900-1930 period can be found and many of these are in much better condition. An example of a few of the items found have been illustrated here (Fig. 40). It is our opinion that the systematic collection of this surface debris would not be worth the effort and so no

collections were retained other than those found in the excavation units. These items were retained to show the degree and the depth of the disturbance in each excavation unit.

Only 138 fragments of bone, 5 fragments of shell, and a few fragments of glass, nails, etc., of historical origin were collected. There were, however, no bone objects that were made into recognizable artifacts and the absolute frequencies of these materials are very low. The bone materials are so fragmentary that they could not be identified to species--if such an analysis were undertaken.

Artifact Analysis

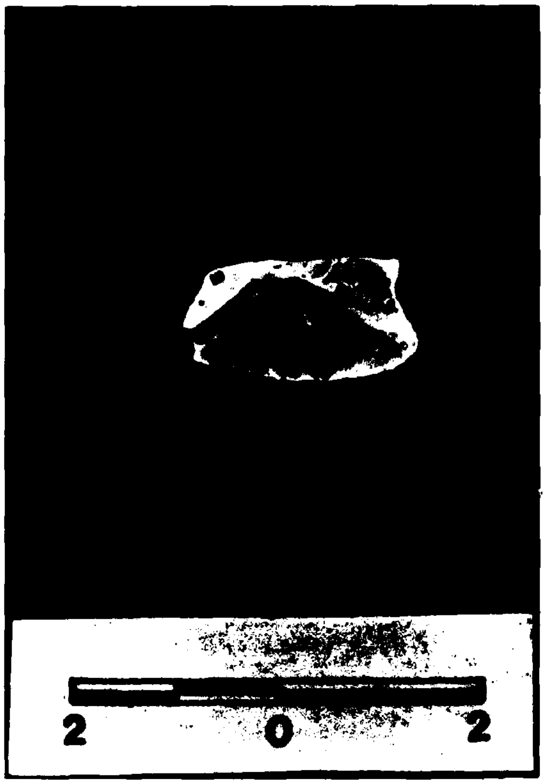
The sample extracted from the site contained lithic, bone, shell, and historical objects. The analysis of the artifacts consisted of descriptions only and no effort was made to analyze the materials from either a technological, functional or temporal point of view.

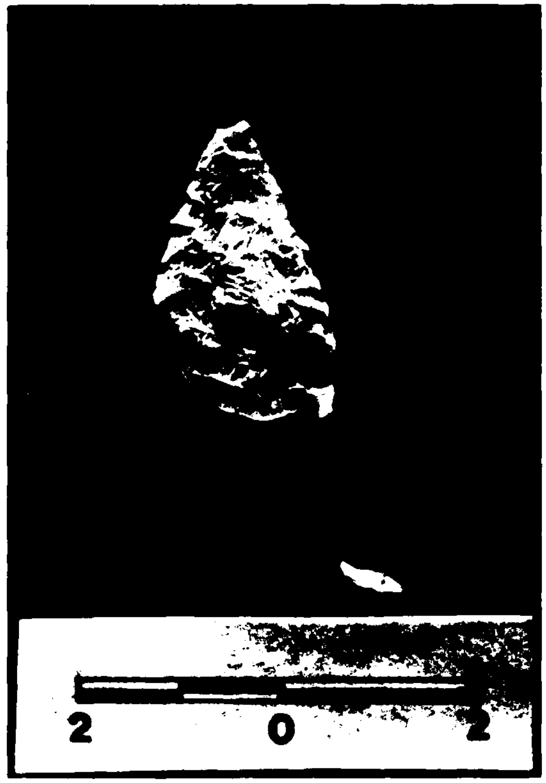
Figure 31. Projectile Point, Elko Side-notched (?), from X-105, Level 5, Area VIII.

Figure 32. Projectile Point, Triangular Point (type unknown), from X-3, Level 2, Area VII.

Figure 33. Projectile Point, Rose Springs Corner-notched (?), from X-105, Level 4, Area VIII.

Figure 34. Projectile Point, Elko Corner-notched (?), from X-1, Level 2, Area VI.


2 0 2


2 0 2

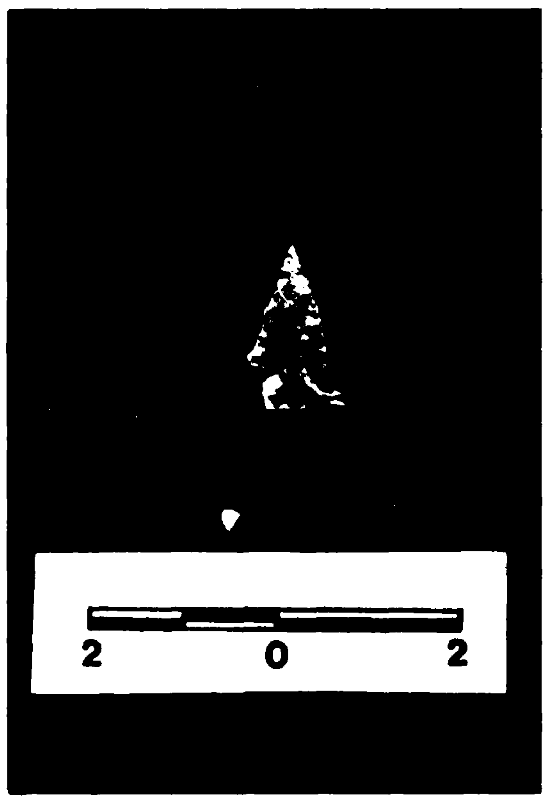

2 0 2

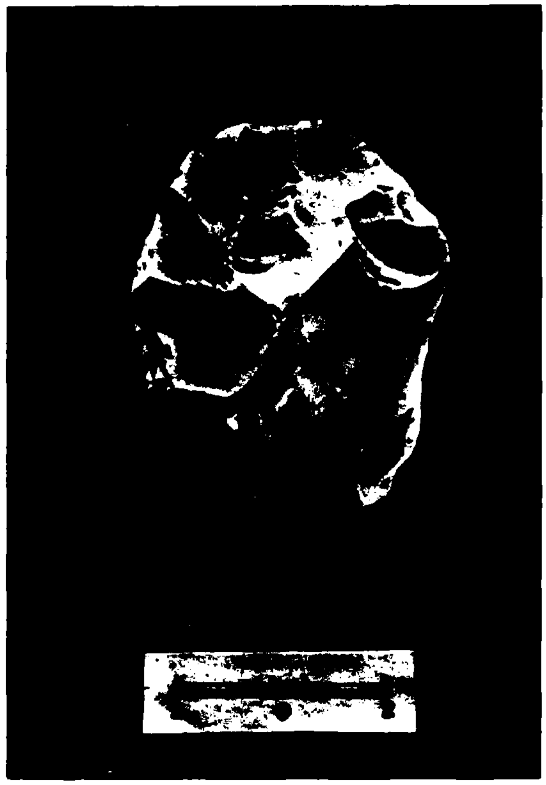
Figure 35. Large Bifaces, Ovate Triangular, from 24.40E/7.58N and 24.43E/7.69N, Level 3, Area VII.

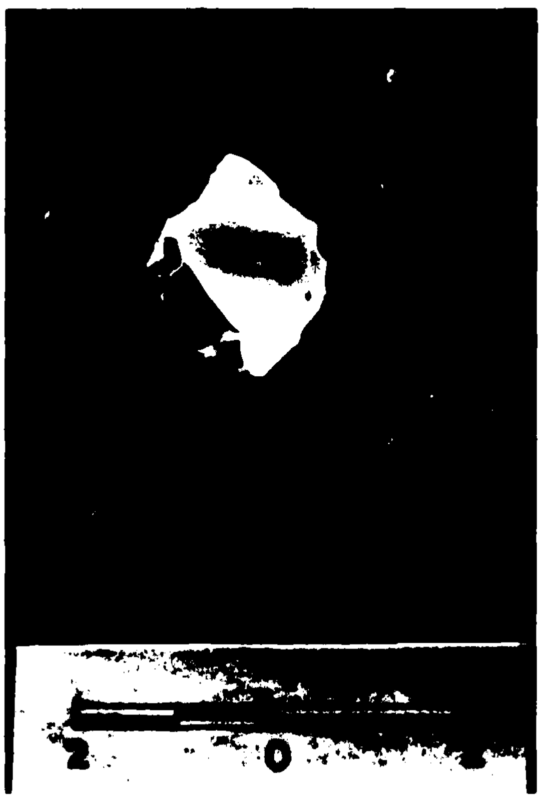
Figure 36. Scraper, Sub-triangular to Ovate, from X-106, Level 8, Area VIII.

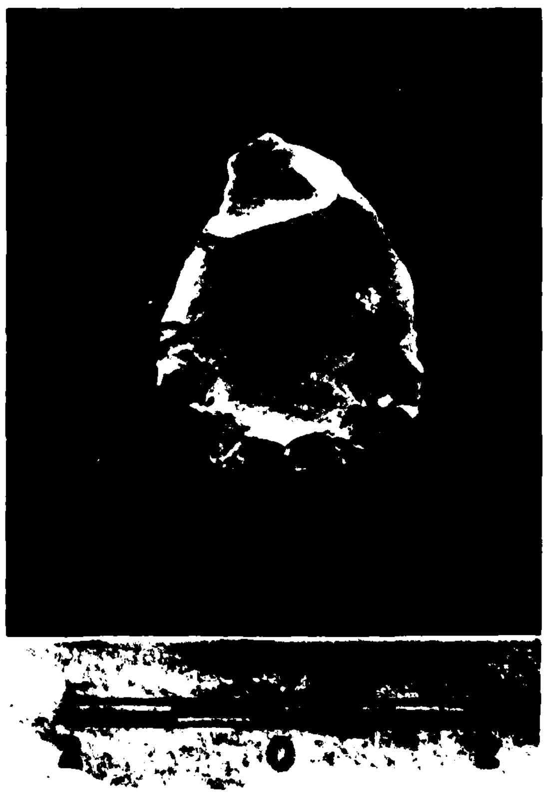
Figure 37. Scraper, Sub-triangular to Ovate, from X-12, Level 4, Area VII.

Figure 38. Scraper, Sub-triangular to Ovate, from X-4, Level 4, Area VI.


2 0 2





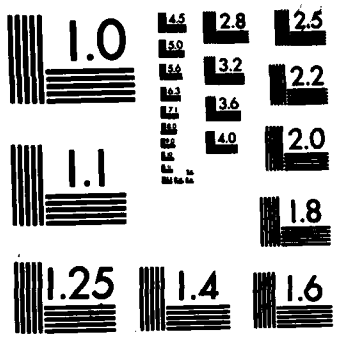


AD-A126 862 ARCHAEOLOGICAL TEST EXCAVATIONS PHASE II TESTING AT THE HAGERMAN NATIONAL..(U) EASTERN WASHINGTON UNIV CHENEY G A LOTHSON ET AL. FEB 81 1-2 DACW01-81-C-0026 2/2

UNCLASSIFIED F/G 5/6 NL

END

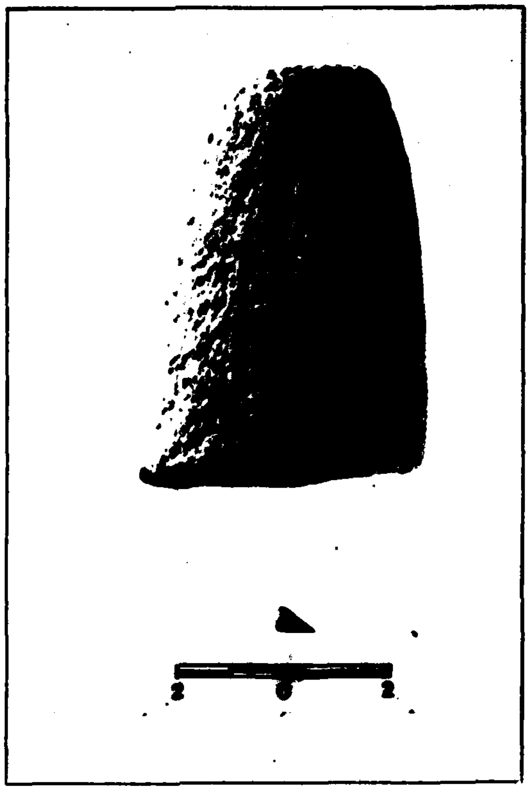
FILMED



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Figure 39. Ground Stone Artifacts, Possible Grinding Stone or Pestle, from X-105 and X-106, Area VIII.

Figure 40. Examples of the Fragmentary Historical Artifacts Collected from Areas VI, VII, and VIII.


2 0 2

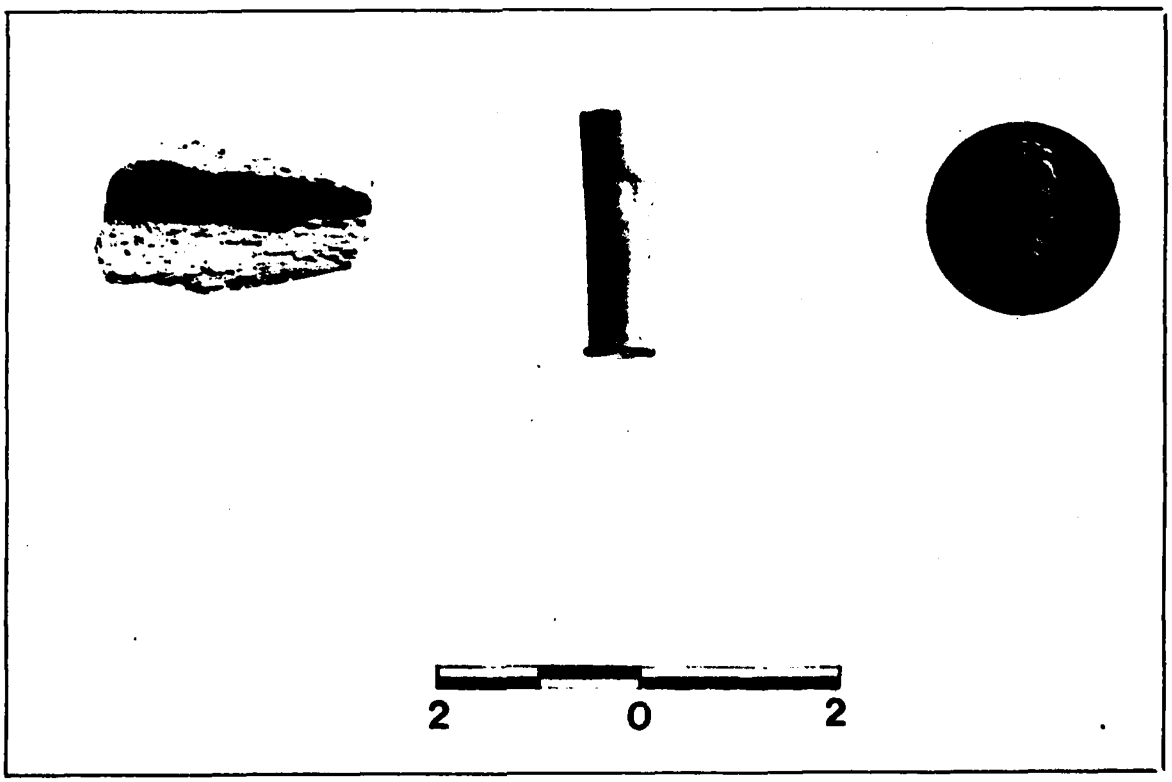

2 0 2

TABLE 9

A COMPARISON OF THE FREQUENCIES OF FLAKE SIZE WITH LITHIC MATERIALS

	Obsidian	Basalt	Chert					Felsite	Chalcedony	#	%
			Brown	Gray	Dk. Brown	White	Red Brown				
5 mm	0	0	0	0	0	0	0	0	0	0	0.0
10 mm	79	3	10	4	7	7	0	0	1	111	30.92
15 mm	69	21	10	6	7	4	4	1	0	122	33.98
20 mm	41	11	4	10	3	5	2	1	1	78	21.73
25 mm	11	7	4	4	1	4	1	0	0	32	8.91
30 mm	0	2	1	1	3	0	0	0	0	7	1.95
35 mm	1	1	0	1	0	1	0	1	0	5	1.39
40 mm	3	0	0	0	0	0	0	0	0	3	0.84
45 mm	1	0	0	0	0	0	0	0	0	1	0.28
50 mm	0	0	0	0	0	0	0	0	0	0	0.00
55 mm	0	0	0	0	0	0	0	0	0	0	0.00
60+ mm	0	0	0	0	0	0	0	0	0	0	0.00
Totals	205	45	29	26	21	21	7	3	2	359	100.00
	57.10	12.54	8.08	7.24	5.85	5.85	1.95	0.84	0.56	100.01	%

TABLE 10

A COMPARATIVE GUTMAN SCALE OF FLAKE SIZE VS. FLAKE MATERIAL RANKED BY INCREASING FREQUENCIES

Increasing Frequencies ⟶

Increasing Frequencies ↓

Lithic Materials	Obsidian	Basalt	Brown Chert	Gray Chert	Dark Brown Chert	White Chert	Red Brown Chert	Felsite	Chalcedony		Numbers
15 mm	69	21	10	6	7	4	4	1	0	=	122
10 mm	79	3	10	4	7	7	0	0	1	=	111
20 mm	41	11	4	10	3	5	2	1	1	=	78
25 mm	11	7	4	4	1	4	1	0	0	=	32
20 mm	0	2	1	1	3	0	0	0	0	=	7
35 mm	1	1	0	1	0	1	0	1	0	=	5
40 mm	3	0	0	0	0	0	0	0	0	=	3
45 mm	1	0	0	0	0	0	0	0	0	=	1
5 mm	0	0	0	0	0	0	0	0	0	=	0
50 mm	0	0	0	0	0	0	0	0	0	=	0
55 mm	0	0	0	0	0	0	0	0	0	=	0
60+ mm	0	0	0	0	0	0	0	0	0	=	0
Totals	205	45	29	26	21	21	7	3	2	=	359

RETOUCHED FLAKES

Retouched Flakes:

Sample size: n=2, broken
Figure: none
Provenience: X-23, level 5; X-106, level 3
Measurements (maximum):

		1	2		
Length	=	1.58 cm	3.02 cm	NA	NA
Width	=	1.56 cm	1.13 cm	NA	NA
Thickness	=	0.34 cm	0.24 cm	NA	NA

Range in variation :

Length	=	1.58 - 3.02
Width	=	0.24 - 1.56
Thickness	=	0.24 - 0.34

Shape: NA
Cross section: flat to convex, variable
Edges: straight
Color: black non-transparent obsidian N2.5
Base: NA
Material: obsidian
Luster: vitrious
Method of manufacture: pressure flaking on both faces, retouching of the edges, probably parts of broken artifacts

BIFACES, PROJECTILE POINTS AND BIFACES (LARGE)

Projectile Point Type I: Elko Side-Notched (?)

Sample size: n=1, broken
Figure: 31
Provenience: X-105, level 5
Measurements (maximum):

			$\bar{x}$	
Length	=	2.94 cm	NA	NA
Width	=	NA	NA	NA
Thickness	=	0.55 cm	NA	NA
Width at base	=	NA	NA	NA

Range of variation:

Length	=	NA
Width	=	NA
Thickness	=	NA
Width at base	=	NA

Shape: triangular to leaf-shaped
Cross section: double convex
Edges: straight to slightly convex
Base: concave to straight (?)
Color: black N2.5 to N3.1
Material: basalt granular
Luster: waxy to granular
Method of manufacture: projectile points appear to have been made from a flake with fine retouching of the edges

Projectile Point Type II: Triangular projectile point (type unknown)

Sample size: n=1, broken
Figure: 32
Provenience: X-3, level 2
Measurements (maximum):

		$\bar{x}$	
Length	= 2.88 cm	NA	NA
Width	= 1.51 cm	NA	NA
Thickness	= 0.54 cm	NA	NA
Width at base	= 1.38 cm	NA	NA

Range of variation:
Length = NA
Width = NA
Thickness = NA
Width at base = NA
Shape: triangular
Cross section: double convex
Edges: straight
Base: very slightly concave
Color: black non-translucent (opaque) N2.5
Material: obsidian
Luster: vitrious
Method of manufacture: small projectile point made from a flake, fine retouching confined to the cutting edge

Projectile Point Type III: Rose Springs Corner-Notched (?)

Sample size: n=1
Figure: 33
Provenience: X-105, level 4
Measurements (maximum):

		$\bar{x}$	
Length	= 2.88 cm	NA	NA
Width	= 1.51 cm	NA	NA
Thickness	= 0.54 cm	NA	NA
Width at base	= 1.38 cm	NA	NA

Range of variation:
Length = NA
Width = NA
Thickness = NA
Width at base = NA
Shape: triangular
Cross section: double convex to slightly flat (one side)
Edges: straight
Base: very (extremely) convex
Color: black non-translucent (opaque) N2.51
Material: obsidian
Luster: vitrious
Method of manufacture: small projectile point made from a flake, percussion flaking, fine retouching confined to the cutting edge

Projectile Point Type IV: Elko Corner-notched (?)

Sample size: n=1, broken
Figure: 34
Provenience: X-1, level 2
Measurements (maximum):

		$\bar{x}$	
Length	= NA	NA	NA
Width	= 2.38 cm	NA	NA
Thickness	= NA	NA	NA
Width at base	= 2.38 cm	NA	NA

Range of variation:
- Length = NA
- Width = NA
- Thickness = NA
- Width at base = NA

Shape: NA
Cross section: double convex
Edges: NA
Base: very slightly to moderately convex
Color: black non-translucent (opaque)
Material: obsidian
Luster: vitrious
Method of manufacture: small projectile point probably made from a flake, notching very slight, fine retouching on edges and on the base, thinned at base--one or two large basal flakes removed

Large Bifaces Type I:

Sample size: n=2, broken--one reconstructable, one fragmentary
Figure: 35
Provenience: 24.40E/7.58N, 24.43E/7.69N, level 3, X-106, level 2
Measurements (maximum):

	1	2	$\bar{x}$	
Length	= 6.35 cm	NA	NA	NA
Width	= 4.38 cm	2.06 cm	NA	NA
Thickness	= 0.83 cm	NA	NA	NA
Width at base	= 6.15 cm	NA	NA	NA

Range of variation:
- Length = NA
- Width = NA
- Thickness = NA
- Width at base = NA

Shape: ovate to triangular ovate
Cross section: convex-flat
Edges: convex
Base: convex
Color: black non-translucent
Material: obsidian
Luster: vitrious
Method of manufacture: percussion flaking of a large flake, retouching by free hand percussion, no pressure flaking present, cortex present on one face

SCRAPERS

Scrapers:

Sample size: n=3
Figures: 36, 37, 38
Provenience: X-106, level 8; X-12, level 4; X-4, level 5

Measurements (maximum):	1	2	3	$\bar{x}$
Length =	2.28 cm	3.14 cm	7.35 cm	
Width =	1.82 cm	2.46 cm	5.95 cm	
Thickness =	0.46 cm	0.81 cm	1.83 cm	

Range of variation.:
Length = 2.28 - 7.35
Width = 1.82 - 5.95
Thickness = 0.46 - 1.83
Shape: sub-triangular to ovate
Cross section: convex-concave
Edges: ovate-convex
Base: NA
Color: black, opaque, N2.5, dark gray N/4
Material: obsidian, gray chert
Luster: vitreous to waxy
Method of manufacture: retouching of one edge only, percussion flaking on one face only, made on a flake

GROUND STONE MATERIALS

Ground Stone Artifact: pestle

Sample size: n=1, broken
Figure: 39
Provenience: X-106, 83.13S/14.95E, el. 99.30

Measurements (maxiumum):		$\bar{x}$	x
Length =	8.15 cm	NA	NA
Width =	5.61 cm	NA	NA
Thickness =	5.26 cm	NA	NA

Range of variation:
Length = NA
Width = NA
Thickness = NA
Shape: cylindrical
Cross section: round to ovate
Edges: NA
Color: pink, 7.5YR8/4
Base: NA
Material: igneous rock, metamorphosed gneiss
Luster: dull granular
Method of manufacture: ground and pecked stone, broken, one end is battered showing use to break up object such as roots and berries

PART VI

SUMMARY AND RECOMMENDATIONS

Archaeological test excavations by Pavesic and Meatte have revealed extensive prehistoric occupation of the HNFH locale which appear to date from the late prehistoric period, ca. 850 to 1350 A.D. (Pavesic and Meatte 1980:79) with cultural ties to the Northern Great Basin as opposed to the Columbia Plateau (Pavesic and Meatte 1980:77). Pavesic and Meatte tested the site area, isolating seven localities and recommending further work be done in those areas to be impacted by future construction.

In an effort to avoid impacts to the cultural resources present at the archaeological site, the Walla Walla District, USACE, redesigned the proposed project so as to place the new facilities outside of the site boundaries. In order to make certain that the resources would not be destroyed or otherwise compromised, archaeological testing of the site was suggested and carried out by EWU under the direction of Harvey S. Rice, Principal Investigator, and Gordon A. Lothson, the Field Director. The results of these investigations have been presented here with minimal analysis. Detailed analysis was considered beyond the scope of work outlined by LeRoy Allen, Archaeological Coordinator, Walla Walla District, USACE.

It is the opinion of the writers of this study that the site areas tested have been greatly affected by the activities of modern man and that some additional but restricted work should be done. It is also our opinion that the Integrity of Location provision of the National Register criteria as stated in CFR 800, part 800.9 and 36 CFR 60, part 60.6, are not applicable to Areas VII and VIII described herein. These two areas

have yielded significant archaeological information, but are unlikely to yield additional data that would make additional excavation worth the money and time invested, except in regard to the reservation and recommendations listed below:

> The quality of significance in American history, architecture, archaeology and culture is present in districts, sites, buildings, structures and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association . . . that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60, part 60.6) [Emphasis added].

Areas VII and VIII are unlikely to yield important archaeological data. Area VI, situated near Riley Creek, however, has yielded and is likely to yield additional significant archaeological data. For these reasons, we have suggested the following recommendations.

Recommendations

1. It is our feeling that the proposed site of the administrative complex does not meet the criteria of the National Register of Historic Places. The feature found by Pavesic and Meatte (1980:119) probably represents an isolated activity area, the function of which has not been clearly defined. We do not feel that any additional work need be done as the area is greatly disturbed and the density of materials so low as to be insignificant.

2. Area VI, on the other hand, contains significant quantities of cultural debris that should be extensively tested at the Phase III level of analysis if additional construction is planned in the area (Lothson 1979, 1980). How extensive this testing should be is dependent, of course, on the amount of disturbance caused by y propo ., construction. This area contains obvious cultural features in situ that could provide meaningful data relevant to spatial analysis of the kind described by Clarke

(1977). This area should be excavated if it is to be disturbed by construction activities.

3. The cold storage area (Cold Storage Area VIII) is also clear of significant archaeological materials except for an extremely small portion lying adjacent to an outcrop of rock southwest of the proposed raceways to be constructed at the HNFH site. If this area cannot be avoided by construction activities, it could easily be cleared by those who do any mitigation work at the site. The undisturbed area is very small indeed and would require only one or two days by a crew of six to eight persons to extract an adequate sample. The remainder of the cold storage area requires no additional work as it has been badly disturbed by earlier construction activities. It is our feeling that no adverse effect will result in the construction of the cold storage unit. The location of the test pits containing archaeological materials are indicated in Fig. 26.

This report should not be considered to be permission to proceed with this proj.... It contains professional opinions on cultural resources that might be affected by the project. This report should be submitted to the appropriate review agencies for their comments prior to the commencement of any ground disturbing activities.

BIBLIOGRAPHY

Braidwood, Robert J.
1975 Prehistoric men (eighth ed.). Scott, Foresman, Glenview, Illinois.

Butler, B. Robert
1968 A guide to understanding Idaho archaeology (second ed., revised). Special Publication. Idaho State Museum, Pocatello.

Clarke, David I.
1977 Spatial archaeology. Academic, New York.

Code of Federal Regulations
1966 36-CFR-800, part 800.9 and 36-CFR-60, part 60.6. Department of Interior, National Park Service, Washington, D.C.

Coles, T.M., and E.S. Higgs
1968 The archaeology of early man. Penguin Books, Harmondsworth, Middlesex, England.

Contract #DACW-81-C-0226
1980 Walla Walla District, U.S. Army Corps of Engineers, Walla Walla, Washington and Eastern Washington University, Cheney.

----------.
n.d. Map furnished by LeRoy Allen, Archaeological Coordinator, Walla Walla District, U.S. Army Corps of Engineers, Walla Walla, Washington.

Crabtree, Don E.
1972 An introduction to flintworking. Pocatello, Idaho.

Daubenmire, Rexford
1970 Steppe vegetation of Washington. Washington Agricultural Experimental Station, Technical Bulletin 62. Washington State University, Pullman.

Franklin, Jerry F. and C.T. Dyrness
1973 Natural vegetation of Oregon and Washington. USDA Forest Service, General Technical Report PNW-8. U.S. Department of Agriculture, Portland, Oregon.

Hironaka, M. and M.A. Fosberg
1979 Non forest habitat types of southern Idaho. Interim Report. College of Forestry, Wildlife and Range Sciences. Forest, Wildlife and Range Experiment Station. University of Idaho, Moscow.

Lothson, Gordon A. and William Gray
1979 Phase II excavation and testing of the Rock Island Reservoir, Washington 1977. Washington State University Progress Report 81. Washington Archaeological Research Center, Pullman.

Lothson, Gordon A., Thomas Gene Smith and David J. Johnson
1980 Phase II excavation and testing of the Rock Island Dam Reservoir Washington: A study in spatial analysis. Chelan County Public Utility District No. 1, District Resolution 5632. Washington Archaeological Research Center, Washington State University, Pullman.

Morrison, R.B. and John C. Frye
1965 Correlation of the middle and late quaternary successions of the Lake Lahontan, Lake Bonneville, Rocky Mountain (Wasatch Range): Southern Great Plains and Eastern Midwest Areas. Nevada Bureau of Mines Report 9. University of Nevada, Reno.

Pavesic, Max G. and Daniel S. Meatte
1980 Archaeological test excavations of the National Fish Hatchery locality Hagerman Valley, Idaho. Archaeological Report 8. Boise State University, Boise, Idaho.

Soil Survey Staff
n.d. Soil survey manual agricultural handbook 18 (revised). Fifth draft manuscript copy unedited 1975. USDA Soil Conservation Service Section I.

Soil Taxonomy
1975 U.S. Department of Agriculture Soils and Water Conservation Service prepared by the Soils Conservation Research Group.

Webster, D.G., Victor R. Baker and Carl Gustafson
1976 Channeled scablands of southeatern Washington: A road log via Spokane-Coulee City-Vantage-Washtucna-Lewiston-Pullman. Field Guide 2. Department of Geology, Washington State University, Pullman.

References cited in Pavesic and Meatte 1980.

Stearns, Harold T., Lynn Crandall and W.G. Steward
1938 Geology and groundwater resources of the Snake River Plain in southeastern Idaho. U.S. Geological Survey, Water-Supply Paper 774. Washington.

Young F.O., Glen Trail and B.L. Young
1929 Soil survey of the Gooding area, Idaho. Bureau of Chemistry and Soils 10. U.S. Department of Agriculture, Washington.

APPENDIX A

VEGETATION OF THE HAGERMAN LOCALE
(After Franklin and Dyrness, 1973)

Artemisia tridentata-Agropyron spicatum Association

1.	*Artemisia tridentata*	(big sagebrush)
2.	*Agropyron spicatum*	(bluebunch wheatgrass)
3.	*Poa sandbergii*	(Sandberg's bluegrass)
4.	*Phlox diffusa*	(spreading phlox)
5.	*Aster scopulorum*	(crag aster)
6.	*Aster canescens*	(hoary aster)
7.	*Chaenactis douglasii*	(falseyarrow)
8.	*Collinsia parviflora*	(littleflower collinsia)
9.	*Phlox gracilis*	(pink annual phlox)
10.	*Lappula redowskii*	(western stickseed)
11.	*Gayophytum ramosissimum*	(hairstem groundsmoke)

Artemisia rigida-Poa sandbergii Association

1.	*Artemisia rigida*	(stiff sagebrush)
2.	*Poa sandbergii*	(Sandberg's bluegrass)
3.	*Bromus tectorum*	(cheatgrass brome)
4.	*Festuca microstachys*	(Nuttall's bescue)
5.	*Agropyron spicatum*	(bluebunch wheatgrass)
6.	*Sitanion hystrix*	(bottlebrush squirreltail)
7.	*Mimulus nanus*	(dwarf monkeyflower)
8.	*Zigadenus paniculatus*	(foothill deathcamas)

Riparian Environmental Association:

A whole series that is area specific, the major constituents of which are *Salix* sp. (willow) and *Typha latifolia* (broad-leaved cattail).

APPENDIX B

FAUNAL RESOURCES OF THE NORTHERN GREAT BASIN
(after Pavesic and Meatte, 1980)

Mammals

western canyon bat	(Pipistrellus hesperus)
Snake River Valley raccoon	(Procyon lotor excelsus)
little spotted skunk	(Spilogale gracilis saxatilis)
Nevada long-eared desert fox	(Vulpes macrotis nevadensis)
Nevada mantled ground squirrel	(Spermaphilus lateralis)
Great Basin chipmunk	(Eutamias minimus scrutator)
Townsend pocket gopher	(Thomomys townsendii)
Idaho pocket mouse	(Perognathus parvus idahoensis)
Columbia kangaroo rat	(Dipodomys ordii columbianus)
short-tailed grasshopper mouse	(Onychomus leucogaster brevicaudus)
canyon mouse	(Peromyscus crinitus c.)
Nevada wood rat	(Neotoma lepida nevadensis)
desert black-tailed jack rabbit	(Lepus californicus deserticola)
muskrat	(Ondatra zibethicus)
yellow-bellied marmot	(Marmota flaviventris)
cottontail	(Sylvilagus nuttallii)
bobcat	(Lynx rufus)
chipmunks	(Eutamias minimus)
badger	(Taxidea taxus)
coyote	(Canis latrans)
weasels	(Mustela erminea and [M.] frenata)
mink	(Mustela vison)
otter	(Lutra canadensis)
mule deer	(Odocoileus heminonus)
pronghorn antelope	(Antilocapra americana)
bison	(Bison bison)

Birds

mallard [duck]	(Anas platyrhynchos)
Canada goose	(Branta canadensis)

Fish

Chinook salmon	(Oncorhynchus tshawytscha)
steelhead trout	(Salmo gairdneri)

APPENDIX C

SOIL DESCRIPTION OF THE HAGERMAN NATIONAL FISH HATCHERY SITE (after Pavesic and Meatte, 1980)

Profile Description

Site 10-GG-176, Hagerman National Fish Hatchery

Profile of pit wall North 45/East end, Unit 5.

[Ah?]* O1 10-0 cm--Pasture grass root zone, under sprinkler irrigation; abrupt wavy boundary to

A1 0-32 cm--Brown (1oYR5/3, moist) silt loam with occasional very coarse sand and granule gravel, well rounded; massive; soft, very friable, nonsticky, nonplastic, krotovena present with iron mottling (Dr. Yellow Brown), cultural debris, flakes, fire cracked rock and charcoal; increasing pores near lower boundary; lower boundary marked by moisture content; clear wavy boundary to

[B]* A11 32-52 cm--Dark yellowish brown (10YR4/4, moist) silt loam with occasional very coarse sand and granule gravel, well rounded; massive; soft, friable, nonsticky, nonplastic; iron staining-mottling from irrigation; few fine roots; few fine vesicular pores; cultural material present; lower boundary determined on the increased number of pores and reduction of iron staining; abrupt wavy boundary to

C1 52-100 cm--Yellowish brown (10YR5/4, moist) silt loam to loam; massive; soft, very friable, nonsticky, nonplastic; common fine vesicular pores with carbonate coatings; few fine roots, occasional very coarse sand and granule gravel, well rounded, no visible arrangement; iron staining-mottling present, granules of carbonate near lower contact; very abrupt wavy boundary to

C2 100-depth not determined--Light gray (10YR7/2, moist) loam; massive; very hard, extremely firm, strongly cemented, nonsticky, nonplastic; carbonate fills many fine to coarse pores, root and insect channels; very fine tubular pores within 1 cm diameter filled channels and is pinkish in color; nodules or dendritic pieces of carbonate can be isolated from sediment, these are hard and brittle but easily broken in hand.

Terms in [] are based on new soil classification system (Soil Survey Staff n.d.).

5-

DT